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ON CHANNEL

NO MORE LICENCE FEES

Well, as predicted in our last issue, licence fees are no longer applicable (from 1 October '94) for CB radios. ACBRO has fought long and hard for this and are to be congratulated on the fact that it has finally happened.

The action is, however, more likely to be simply one small part of the changing scene in the area of radio communications. In the report on page six you will note that the SMA will be examining the situation of using "packet radio" on CB frequencies sometime in the future and this, along with other "class licencing" actions, are all scheduled for review.

While nobody from Canberra was prepared to go on record one way or the other, it seems that the long overdue "no-code" amateur licence will be part of this overall review - however, no firm time frame has been advised and a best guess would be late next year.

DX - OR THE LACK OF IT

The fact that our regular DX propagation chart is not in this issue is not a mistake, only the acceptance of the fact that basically there just isn't enough DX to make the chart of any use. As all DXers know only too well, the declining conditions have reduced DX to a very hit and miss operation and there was so little predicted DX on the IPS chart that it just wasn't worth running. Even Jack Haden has virtually admitted defeat in this issue and when Jack can't work DX there just isn't much around. That does not mean that there isn't any, but, it is now totally unpredictable and pretty much a matter of being on the right channel, with the right equipment, and at the right time to work anything from overseas.

The situation should improve slightly, and I mean slightly, as we move further into Spring and Summer but the pickings will remain lean for quite some time yet.

SCANNER, RADIO or BUGGING DEVICE?

Russell Bryant is back with us for this issue by way of a review on the Optoelectronic Interceptor - a long name for a unit which we think will interest a lot of people. In brief, this unit picks up the strongest signal it is receiving over a relatively short distance without it being necessary to tune to, or even know, what frequency that signal is on...

As an example, Russell was driving in fairly close company with a tourist bus and started to receive something in Japanese - as he passed the bus he noticed that it was filled with Japanese folk and what he was receiving was the voice of the tour guide pointing out items of interest.

The unit cannot be programmed with any frequency but receives all FM transmissions between 30MHz and two GHz and according to Russell's review, does the job very well indeed.

I am personally very ambivalent about the whole idea.

Scanning is something I enjoy, however, this unit is to me more of a bugging device than anything else. It is as Russell says, "innovative, and incredible" but then again so are are dozens of other units built specifically for industrial espionage and the like. It can of course pick up cordless 'phones and 600mW handheld cellular 'phones and I candidly do not think that this is what scanning is all about. Still, it's here and available and will undoubtably prove to be a good seller.

I still, however, have reservations about it as, apart from the morality of listening to would-be private 'phone conversations, I think it is the sort of unit which will influence the thinking of the authorities if/when they ever get around to discussing the availability of scanners.

CB Action

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...at last

NO MORE CB LICENCE FEES

Under the new arrangements the existing CB licencing scheme, including fees, has been scrapped

A series of consultations with CB radio users, initiated by the Spectrum Management Agency (SMA), has resulted in a new licensing arrangement which took effect from 3 October.

Under the new arrangements the existing CB licensing scheme, including fees, has been scrapped and replaced by a class licence.

That means a saving of $18 per set per year for every licensed CB radio operator. It also means peace of mind for CBers who have been operating unlicensed sets.

The SMA points out that while fees have been abolished, the class licence system does not mean that the CB service will be deregulated.

Licence conditions, similar to those applicable under the previous licence arrangement, will still apply and equipment will still need to comply with existing technical requirements.

A class licence is a blanket licence - an open, standing authority allowing anyone to operate a CB radio, provided the operation and the equipment is in keeping with the conditions of the licence.

The class licence applies automatically to everyone using a CB. There is no need to apply for, or be issued with, a licence. Copies of the licence, which includes the operating conditions, are however, available free of charge from SMA offices around Australia.

CB repeater stations, however, need individual frequency assignments and will continue to be licensed under the apparatus licensing arrangements.

According to the SMA, class licences are an accepted form of managing access to the radiocommunications spectrum where the same set of frequencies is shared by a particular group, or class, of users and all users are subject to the same licence conditions.

Class licences have already been introduced for low powered devices and other services that do not require individual licensing. Remote control garage door openers and mobile telephones, for example, are covered by their respective class licenses.

The SMA believes class licensing of CB radios has advantages to both the user and the Agency.

By not having to licence individual operators, the SMA achieves administrative savings and the CBers benefit from not paying annual licence fees.

Class licensing also provides the SMA with an opportunity to use its resources more efficiently in managing the radio spectrum, including the CB spectrum.

One of the essential elements in the development of the new class licensing strategy was wide-ranging consultation with CB radio users.

The consultation came in the form of the public inquiry into the apparatus licensing system earlier this year which included public seminars and the distribution of 4,000 copies of the "Inquiry into the Apparatus Licence System" discussion paper.

The SMA seminars around Australia attracted more than 900 people and 422 submissions. Of the total number of submissions, 138 related to class licensing with 53 concerned with CB radio.

While there was strong support for class licensing, there was also some reservations about the potential problems of a "deregulated" environment which was seen as increasing the risk of operators not complying with regulations.

In response, the SMA points out that a class licence includes enforceable conditions in the same way as the individual apparatus licensing system.

Alan Jordan, of the SMA's Compliance and Licensing Directions Team, told CB Action that it would be business as usual in the compliance area.

The SMA can and will take action against those users who are not complying with licence conditions, just as it did before October 3, he said.

"Using non standard equipment; operating on channels not specified in the class licence; and causing deliberate interference to other radiocommunications, will all attract the same attention and the same penalties as they did under the old system,

"We will continue to respond to complaints about abusive language and other offences under the Act," he said.

Meetings in July this year with committees and senior officers of two CB radio organisations, CREST Citizen Radio Emergency Service Team) and ACBRO (Australian Association of Citizens and Band Radio Operators) confirmed a very positive attitude towards class licensing.

The SMA has provided some answers to the questions they have already been asked about class licences:

Call signs: Under the class licensing system, call signs will not be issued to individual users. However, the SMA recommends that operators use some form of identification.

Power levels: CB radio equipment must not exceed the maximum output power that is specified in the class licence. Linear amplifiers are still not permitted and using one is a breach of class licence conditions .

Selective calling: Selective calling on either 27 Megahertz or UHF is permitted under class licences. Selective calling allows unwanted messages to be filtered out. However, the SMA points out that this doesn't mean that CB may be used for other purposes like activating alarms or remote control devices.

Packet Radio: The purpose of CB radio is for voice communications only, including the transmission of tones for selective calling, so Packet Radio transmissions are not permitted. However, Alan Jordan adds that the SMA will review the use of Packet Radio using CB spectrum next year,

Repeater stations: Because UHF CB repeater stations are usually located at hilltop radiocommunication sites, their frequencies are coordinated with the frequencies of other users to prevent interference. As a result, they are required to be covered under separate apparatus licences, not a class licence.

Connections to PTN: CB radio stations that are used at fixed sites may be connected to the Public Telecommunications Network (PTN).

A permit is required from the Australian Telecommunications Authority (AUSTEL) to authorise the connection to any telecommunications network. To operate the station in conjunction with a telephone, the telephone interconnection equipment must also be approved by AUSTEL.

If you were hoping to get a refund on your current $18 apparatus licence, you are out of luck. Existing licences will simply lapse when they reach the expiry date. The SMA is not offering refunds.

More information:

The Spectrum Management Agency has prepared information sheets on class licensing as well as other information on CB radio regulations and problems like interference. Copies of the detailed class licence are also available. For free copies call your nearest SMA office,

They are:

Canberra	(06) 248 9600
Sydney	(02) 922 9111
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Coffs Harbour	(066) 51 5452
Adelaide	(08) 237 6333
Darwin	(089) 41 0366
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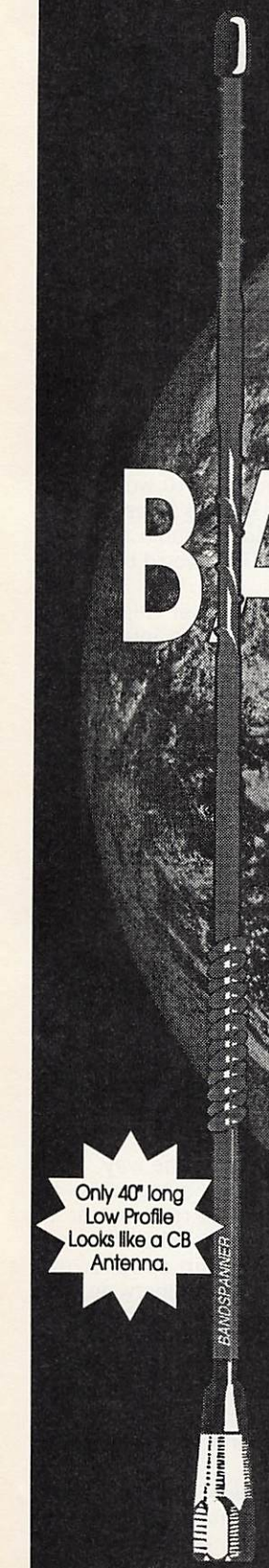

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THE OPTOELECTRONICS R10 FM COMMUNICATIONS INTERCEPTOR

Innovative, unbelievable, incredible, are just a few of the accolades that describe the, Optoelectronics R10 FM Communications Interceptor.

By Russell Bryant

They are everywhere, invading our homes, cars, offices and, more importantly, our bodies. Frequencies are the blood that pumps through the veins of our scanners; without them a scanner is merely a plastic box of electronic bits and pieces.

We seek them here...

As a scannist of the first order, I pursue the elusive frequency in order to monitor what, out of the ordinary, is going on around me.

With scanner in search mode, I seek to hear radio transmissions at home, as well as in the field.

It is the latter that presents a problem. It is not always possible to start searching out the frequency being used by an emergency service worker at the scene of an incident (from a safe distance, of course).

Even if you have the approximate band limits programmed into the set, chances are they will have stopped talking before your scanner lands on the appropriate set of numbers. All is about to change!

For some time now an American company based in Florida has been researching and developing a catalogue of products that enhance the hobby of two-way monitoring and communications reception generally.

What is it?

Optoelectronics has come up with a hand-held unit called the **Interceptor**. It looks somewhat like an up-market FM broadcast band receiver which, by the way, it is.

To call it a scanner would be okay in the very loose sense of the word, but the comparison ends there.

Semi retired (hah hah) scanner columnist, Russell Bryant reviews a fist full of dynamite. The monitoring world take note.

The **R10** cannot be programmed with any frequency, yet it receives all FM transmission between 30 MHz and 2 GHz. The best bit is, as soon as your target radio user hits the press to talk of his set, you hear the conversation.

Granted, you don't know the frequency being used, but you do hear what is being said. After all isn't that the idea?

The Optoelectronics R10 is a revolution in monitoring technology. Its size and simplicity in operation further enhance its appeal to users.

Radio technicians can check the modulation of a transmitter with an hand-held instrument rather than a heavy bench-mounted one.

Interested parties can monitor all two-way transmissions at the scene of an emergency without prior knowledge of frequencies.

There are of course dozens of other uses for the R10.

Why is it so?

How does it work? Well, I'm glad you asked...

The Optoelectronics R10 maximises the use of 'near field technology'. Without this system the R10 would lock onto the first signal it came across.

With the expansion of radio services within our cities the R10 would be paralysed.

The inclusion of a user adjustable sensitivity level means the Interceptor only responds to signals above that level — those found in the near field of a radio transmitter.

That's what goes on inside the box, but what does it offer in the way of controls?

In keeping with Optoelectronics policy of user-friendly devices, the R10 is really deceptively simple. All the buttons and dials are located on the top of the unit. Working from left to right, the first control is Deviation 10/100 kHz.

In the 'out' position the deviation meter, located on the front panel, represents 1 kHz of peak deviation. If a strong signal continually causes the receiver to lock, select '10', and by pressing the Dev button the sensitivity is reduced to 10 kHz per segment.

Discretion being the way

Located below the deviation control is a standard 3.5mm earphone jack. Transmissions can be monitored using the Interceptor's built-in speaker or, should discretion dictate otherwise, via the either mono or stereo audio output socket. Next are two LEDs.

The power LED is self-explanatory, while the green lock LED indicates when the unit has locked onto a signal. Two of only four moving parts are the volume and squelch adjust.

The volume pot also doubles as the power switch, while the squelch control

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increases or decreases the sensitivity level of the receiver to suit the conditions. Last, but by no means least, is the skip button.

Should you tire of the signal being heard, depressing skip causes the Interceptor to ignore that signal, temporarily, and seek out others. It doesn't lock out or delete frequencies from the unit like a scanner.

The only other feature is a LED signal strength meter, which is indicative only and not a calibrated instrument.

Testing 1,2,3...

Without doubt the testing of the Interceptor was interesting. Two separate tests were devised. The first was at home, connected to a directional antenna attached to a rotator.

The first thing that became apparent was the 'power' pumped out by FM broadcasters.

I was able to listen to most of Sydney's big few with little trouble, irrespective of where the antenna pointed. Conclusion?

If you wanted to use the R10 to keep tabs on your neighbors, forget it! 2WSFM and 2MMM will discourage you. The second part of my test was broken down into two sub-parts.

Using the Interceptor in the car, firstly with the supplied telescoping whip and secondly attached to an external whip mounted on the boot of the vehicle.

Turning Japanese

Surprise, surprise. In the car test, little of the FM broadcast band domination was evident. In fact, what I could hear using the R10 inside the car with the telescoping whip was an eye-opener. Things that I never knew existed were easily monitored.

While cruising the highway, I suddenly heard a female voice speaking in Japanese. What the hell?!

Then the penny dropped. I was within a car length of a tourist bus, loaded with Japanese sightseers. Clearly visible was the female guide using a wireless microphone to describe the trip. Any attempt to locate the mic using a scanner would have been impossible, given the number of bands it could have been operating in.

Full of enthusiasm, I decided to track down other RF sources. Probably the most obvious are mobile telephones, and it wasn't long before I had zeroed in on a motorist with a phone in one hand and driving with the other. Taking up a position two to three cars behind the target, I was immediately able to hear what was being said.

However, due to the illegality of this act I immediately pushed the skip button and discontinued the monitoring.

While FM broadcasters where the bane of my monitoring at home, pagers all but wiped out most transmissions when the R10 was connected to a UHF mobile whip mounted as described. All was not lost, however.

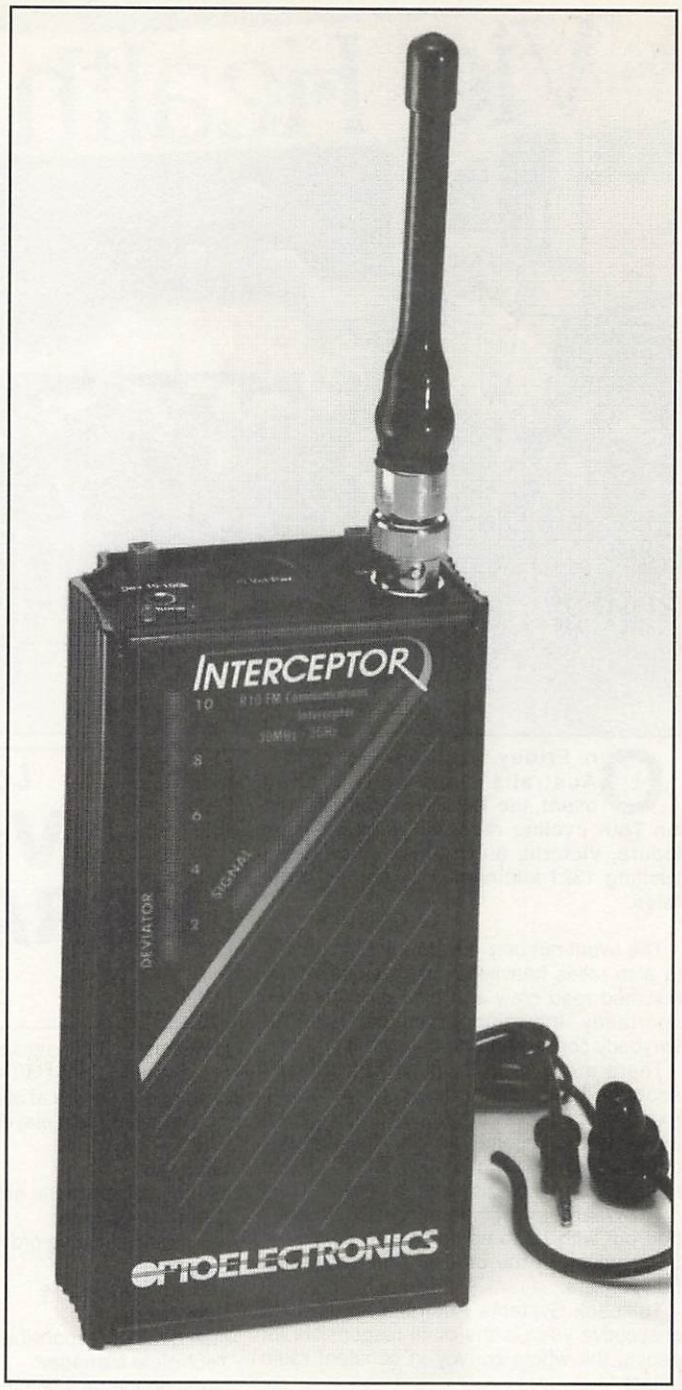
Power stations

Optoelectronics is acutely aware of the effect 'power stations' have on the R10, and accordingly it has developed a series of add-on devices which enable the user to eliminate some of the problems.

The APS104 not only extends the range of the R10 by a factor of ten, it also incorporates a pre-selector which narrows the bandwidth of the Interceptor, thereby reducing interference.

How far can you go?

The distances the R10 can typically receive common radio sources includes, cordless phones, (30 MHz), up to 10 metres; a 5 watt VHF amateur hand-held, (147 MHz), 70-80 metres; a 5 watt UHF CB hand-held, (477 MHz), 150 metres and finally a 600 mW hand-held cellular, (870 MHz), 10-15 metres.



As mentioned earlier, the use of pre-selectors and notch filters can extend and enhance reception considerably.

The **Optoelectronics R10 Interceptor** represents a new dimension in recreational two-way radio monitoring. It gives you the ability to monitor radio communications that surround you as they occur, instantaneously. The R10 is American-designed and manufactured, and is fully warranted.

Available from...

Middleton Communications of Adelaide is the supplier of the Optoelectronics equipment. The company can be contacted on telephone number (08) 347 2098.

The R10 is expected to sell here for around $650.

Lots of frequencies for the...

VIC HEALTH - HERALD-SUN TOUR

October 14 - 23

On Friday, October 14, 1994, Australia's premier cycling event, the 1994 Vic Health Herald Sun Tour cycling race, will kick off from Mildura, Victoria, on the first stage of its gruelling 1321 kilometre trek across three states.

The event not only covers a lot of country, but also relies heavily on the support of the dedicated road crew and officials and, more importantly, the radio communications for everybody concerned with the event.

There are over 200 riders, officials and associated support personnel who travel around the countryside for this 10-day cycling carnival taking in some breathtaking scenery, some hard slog hills, and some of the unique terrain which this country has to offer.

This year there will be almost 40 vehicles fitted out with radio equipment to cover the event, taking in the officials, media, police and sponsors.

Talkback Systems Australia, in its sixth consecutive year, is the outfit responsible for keeping the whole convoy in constant radio contact.

The system basically uses three channels for the day-to-day running of the event. They are:

Channel 1: 471.475 MHz (main race communications)

Channel 2: 471.625 MHz (alternate go-to channel)

Channel 3: 471.900 MHz (media liaison)

The most activity will be heard on Channel 1, and the radio traffic will be hectic all day long.

The Race Commissar is the Federation Of International Cycling Professionals-appointed official who controls the race as it travels around.

The commissar will be constantly talking to race officials, the police and team vehicles to ensure that the passage is smooth, the riders are all looked after, and that the tour envelope is secure at all times.

The other main players in the field will be:

Lead Car:
the first vehicle in the group to warn traffic

Communications:
communications co-ordinator

Courtesy:
police escort vehicle

Director:
race director responsible for overall running

Technical Manager:
assisting the race commissar

Convoy Marshall:
vehicle at rear of convoy to allow authorised traffic

Scout:
responsible for heading the tour in the right way

Media Liaison:
handles all the media outlets on the tour

Spares Vans (three):
carrying all the spare parts

Chief Judge:
co-ordinating two or three other teams of judges

This year there will be 12 separate teams competing for that winner's jacket.

Each team will have a support vehicle which will travel within the tour convoy itself, and another which goes ahead to the end of each stage to set up for when the riders come in at the finish line.

The team cars get called up to the front by the Commissar where the main bunch is when one of their riders needs either food or drink or has a technical problem.

The commissar will usually call something like: "Team 9, number 46 front wheel", for example which means that teams rider number 46 has a punctured front tyre.

When the pressure is on in the bike race, the radio traffic is reduced to 'essential only' traffic, with the commissar quick to react with split-second precision in the event of a fall or a rider requiring assistance.

As the race moves from stage to stage, you will hear a lot of activity between the police escort vehicle and the police area controller on the local area's police channel.

You will also hear a lot of activity on police UHF channel 11, which will be used by the Police Special Solo Section as they escort the tour from day to day.

The police channels to monitor for each stage are:

Stage 1	Channel 9	168.370
Stage 2	Channel 9	168.370
Stage 3	Channel 9	168.370
Stage 4	Channel 9	168.370

Stage 5	Channel 10	168.520	crossing to
	Channel 1	168.220	
Stage 6	Channel 1	168.220	crossing to
	Channel 10	168.520	
Stage 7	Channel 10	168.520	crossing to
	Channel 1	168.220	
Stage 8	Channel 2	168.340	crossing to
	Channel 9	168.370	
Stage 9	Channel 65 UHF	469.400	voting group
Stage 10	Channel 7	76.175	
Stage 11	Channel 7	76.175	
Stage 12	Channel 3	76.700	
Stage 13	Channel 4	76.085	
Stage 14	Channel 12	468.125	

At the race finale at the Treasury Gardens in Melbourne, you will also hear a lot of activity on 415.525 MHz, with the race organisers co-ordinating the final day's racing.

You will also find many of the people taking part using 800 MHz trunking, so try scanning around 865.000 to 869.000 MHz for activity there.

When we are loading and unloading onto the Spirit Of Tasmania for the water stage, if you are in the area have a listen to the Conaust Crews on 156.750 and 156.850 MHz.

Many of the team vehicles will choose to also take along 27 MHz and/or 477 MHz CB radios for communications amongst themselves without disturbing the main race activities, so have a scan around those bands as well for interesting traffic.

They tend to stay around the respective 'truckies' channels on both CB bands.

The communications vehicle will be the easy one to spot, as it will be full of radio equipment and covered in antennas. 'The Porcupine', as it is affectionately known by the race crew, is the hub of all communication acting as the repeater vehicle.

The equipment on board includes:

4 UHF commercial band radios
1 27 MHz CB Radio
1 477 MHz CB Radio
1 UHF commercial band repeater
1 VHF lo-band radio
3 scanner radio receivers
1 digital cellular phone
1 analogue cellular phone

The communications vehicle constantly monitors all of the key channels for whichever area it is in, with such action as police and CB channels, and its staff constantly monitor all race radio channels. You will quite often hear either the communications vehicle or the police escort talking to oncoming traffic on the CB radio channels, giving them that little bit of extra warning as to what is ahead of them. This not only helps the public on the road, but also makes the passage safer for the tour riders themselves.

The experienced two-man radio crews are required to sometimes make on-the-road moving repairs to keep everyone in radio communication as often as possible. It is not unusual to see someone jump out of a vehicle, toolbox and test gear in hand and quickly fly into another vehicle and then have both take off.

As this vehicle is the hub of all communications, it requires an intense amount of concentration to follow the conversations of sometimes up to eight different people at any one time on four different channels.

The tour has a unique aura about it, with high stakes, good prize money and that professional rivalry, this is no 'walk in the park'. It creates a lot of media attention not only in this country but overseas, with the pictures seen every night on international television and appearing in international newspapers the following day.

If the tour passes through your area, tune the scanner to some of the channels mentioned above, and you are bound to hear some not only entertaining but often very unique conversations taking place.

1994 VIC HEALTH HERALD SUN TOUR

THE COURSE

(as at 11.8.'94)

FRIDAY, OCTOBER 14:	**STAGE 1:**	MILDURA (30-lap criterium of 700-metre circuit)	21km
	12 Sprints 0 Hill Climbs	Starts: 11.30 a.m. Finish: approx. noon	
	STAGE 2:	TOUR OF SUNRAYSIA - MILDURA TO WENTWORTH, NSW via Irymple, Sunny Cliffs, Red Cliffs, Cardross, Birdwoodton, Merbein, Curlwaa, Dareton, Coomealla, Curlwaa.	80.2km
	6 Sprints 0 Hill Climbs	Starts: 1 p.m. Finish: approx. 2.55 p.m.	
SATURDAY, OCTOBER 15:	**STAGE 3:**	ROBINVALE TO SWAN HILL via Boundary Bend, Narrung, Havsdale, Piambie, Tooleybuc, NSW, Koraleigh, Nyah, Vinifera, Beverford.	153.6km
	11 Sprints 0 Hill Climbs	Starts: 11 a.m. Finish: approx. 2.50 p.m.	
SUNDAY, OCTOBER 16:	**STAGE 4:**	SWAN HILL TO LAKE BOGA (Individual Time Trial) Starts: 9.30 a.m. Finish: approx. 10.45 a.m.	15.3km
	STAGE 5:	COHUNA TO ECHUCA via Leitchville, Gunbower, Patho, Torrumbarry, Warparilla North.	69.3km
	4 Sprints 0 Hill Climbs	Starts: 2 p.m. Finish: approx. 3.35 p.m.	
MONDAY, OCTOBER 17:	**STAGE 6:**	MOAMA, NSW, TO BENDIGO via Echuca, Rochester, Elmore, Goornong, Huntly, Epsom.	101.9km
	7 Sprints 0 Hill Climbs	Start: 8 a.m. Finish: approx. 10.30 a.m.	
	STAGE 7:	BENDIGO TO SHEPPARTON via Axedale, Toolleen, Colbinabbin, Rushworth, Tatura, Mooroopna.	135.2km
	7 Sprints 2 Hill Climbs	Start: 12.30 p.m. Finish: approx. 3.50 p.m.	
TUESDAY, OCTOBER 18:	**STAGE 8:**	EUROA TO MT. BULLER via Merton, Bonnie Doon, Mansfield, Merrijig.	127.5km
	10 Sprints 2 Hill Climbs	Start: 11 a.m. Finish: approx. 2.30 p.m.	
WEDNESDAY, OCTOBER 19:	**STAGE 9:**	BROADMEADOWS (laps of 1956 Melbourne Olympic Games circuit).	80.7km
	8 Sprints 4 Hill Climbs	Start: 11.30 a.m. Finish: approx. 1.30 p.m.	
THURSDAY, OCTOBER 20:	**STAGE 10:**	GEORGE TOWN TO LAUNCESTON via East Tamar Highway, Karoola, Lalla, Lilydale, Lebrina, Wyena, Scottsdale, Springfield, The Sideling, Targa, St. Patrick's River, Nunamara.	169.3km
	11 Sprints 5 Hill Climbs	Start: 12 noon Finish: approx. 4.15 p.m.	
FRIDAY, OCTOBER 21:	**STAGE 11:**	LAUNCESTON TO SHEFFIELD via Hadspen, Carrick, Hagley, Westbury, Exton, Deloraine, Red Hills, Needles, Chudleigh, Mole Creek, Paradise.	102.2km
	8 Sprints 3 Hill Climbs	Start: 9 a.m. Finish: approx. 11.30 a.m.	
	STAGE 12:	SHEFFIELD TO BURNIE via Barrington, Paloona, Forth, Ulverstone, Penguin, Sulphur Creek, Heybridge.	67.1km
	6 Sprints 0 Hill Climbs	Start: 1 p.m. Finish: approx. 2.45 p.m.	
SATURDAY, OCTOBER 22:	**STAGE 13:**	WYNYARD TO DEVONPORT via Lower Mt. Hicks, Upper Mt. Hicks, Yolla, Elliott, Somerset, Cooee, Stowport, Natone, South Riana, Gunns Plains, North Motton, Gawler, Forth, Braddon's Lookout, Don.	134.1km
	9 Sprints 6 Hill Climbs	Start: 10.30 a.m. Finish: approx. 1.45 p.m.	
SUNDAY, OCTOBER 23:		RIDE WITH THE STARS - SPIRIT OF TASMANIA TERMINAL, PORT MELBOURNE, TO THE TREASURY GARDENS Start: 9.30 a.m. Finish: approx. 10.30 a.m.	17.0km
	STAGE 14:	TREASURY GARDENS, MELBOURNE (Festival of Cycling criterium)	44km
	16 Sprints 0 Hill Climbs	Start: 2.45 p.m. Finish: approx. 3.45 p.m.	

TOTAL KILOMETRES IN VICTORIA & NEW SOUTH WALES: 845.7
TOTAL KILOMETRES IN TASMANIA: 472.7

TOTAL DISTANCE: 1318.4

TOTAL NUMBER OF SPRINTS: 115
TOTAL NUMBER OF HILL CLIMBS: 22

REVIEWING THE NEW UNIDEN 220XLT SCANNER

By Ken Reynolds

While we all hoped for a wide-band continuous coverage receiver spanning from at least below 27MHz (and preferably *much* lower in frequency) right up to and including the almost infamous 1,300MHz 'scanner-limit', we didn't get it.

Instead, what the 220XLT offers is pretty ordinary band segments of:

66 to 88MHz Low Band VHF in 5kHz steps — NBFM.

108 to 136.9872MHz Aircraft Band in 12.5kHz steps — AM.

137 to 174MHz High Band VHF including the two metre amateur band in 5kHz steps — NBFM.

..... Wait a minute.

What was that again?

Five kilohertz steps in the VHF commercial high band?

But this band, like UHF, has just been reassigned with 12.5kHz steps!

Holy faux pas of biblical faux pas... 5kHz goes into 12.5kHz every second step (25kHz), but she don't go into 12.5kHz too well at all... about 2.5 times. This means you can only listen to every second channel - not smart Mr Uniden.

406 to 512MHz UHF Band including UHF CB and the 70cm amateur band in 12.5kHz steps — NBFM

806 to 956MHz UHF Band in 12.5kHz steps ("800 Meg" band) with the exception of the cellular phone band (which we are not permitted to disclose here) where the radio steps in 30kHz increments — NBFM.

Note: **NBFM** = Narrow Band Frequency Modulation

AM = Amplitude Modulation

The only real change in this area is the size of the frequency steps. The desired step sizes and operating modes are selected automatically by the receiver's CPU which makes this style of set perfect for the beginner, occasional user, or just good ol' laid-back operation. The more advanced receivers require considerably more input from the user, including such things as step size, mode of operation and the like.

Another new Uniden scanner model, the **UBC 2500XLT** with increased coverage is scheduled for review next issue.

Although there is a great demand for a small, reasonably-priced scanner with continuous coverage throughout the VHF-UHF spectrum, many potential owners are unaware that receivers like the 220XLT cover most of the often-used, interesting frequencies.

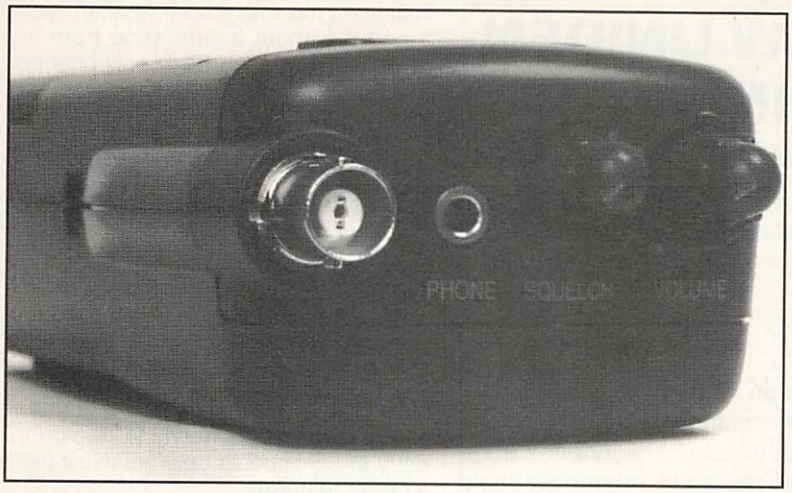
Much of the excluded frequency range is dedicated to VHF and UHF television broadcasting and the FM broadcast band.

Ever had a bad day?

The smooth, rounded look is 'in' at the moment for motor cars and portable radios at least. Not wishing to be the exception to the rule, Uniden has restyled its popular 200XLT portable wide band receiver while making a number of desirable performance improvements as well.

However, there always seems to be

To meet consumer demand for a scanner-receiver that is partially compatible with the new commercial band 12.5kHz frequency channel spacing, Uniden releases a much improved version of the Bearcat 200XLT model and names it the Bearcat 220XLT.



an inexplicable down side.

Sometimes, one is led to wonder about the wisdom of making changes for the sake of change.

Take for example Uniden's portable UHF CB transceiver, the UH-005, which is now obsolete. A good point about this model was its ability to operate directly from a 13.8 volts DC power supply without the need for adaptors or the like.

This point alone set it aside from its competitors.

The unit was revised and updated and became the UH-055 which offered enhanced features including user-programmable scan groups and more, but some 'star' in the brains trust took away the DC socket.

It wasn't just overlooked but it was done with real intent because the manufacturer had to discard the metal battery pack mounting slide on the bottom of the radio for a new pressing without the access hole. Is this dumb or what?

Don't hassle, I'm getting there.

The UBC 200XLT had a great little feature, too, which has been deleted in the new 220XLT model.

The slide on/off battery pack has disappeared in preference for the 'old hat' pigeon hole in the rear radio case into which is stuffed a trussed up pack of four rechargeable 600 mAh AA NiCd cells, all concealed by a sliding plastic cover that snaps securely into place.

The old design allowed the user to carry a spare, charged battery pack for those endurance feats like long weekends and all-night stints.

You could carry a replacement pack for the 220XLT, too, but from past experience, it is easy to break off the light duty battery leads from the tiny two-pin plug if you are a bit clumsy or change the pack once too often.

There is one saving grace, however: the 220 XLT can be operated while charging the internal NiCd battery pack which, according to the operating guide, will take between 14 and 16 hours for a full charge to be absorbed.

No mention is made if you need to compensate the charging time for the period of operation while the battery is charging.

Having got the gripes out of the way, all the rest is smooth sailing...

Physicals and aesthetics

The new rounded styling is elegant and neat, with the charcoal grey plastic case, if I'm not mistaken, intended to look like a portable cellular phone.

The compact loudspeaker is mounted toward the top of the case, the liquid crystal display is just beneath that, and the easy-to-use keypad occupies the lower half of the fascia.

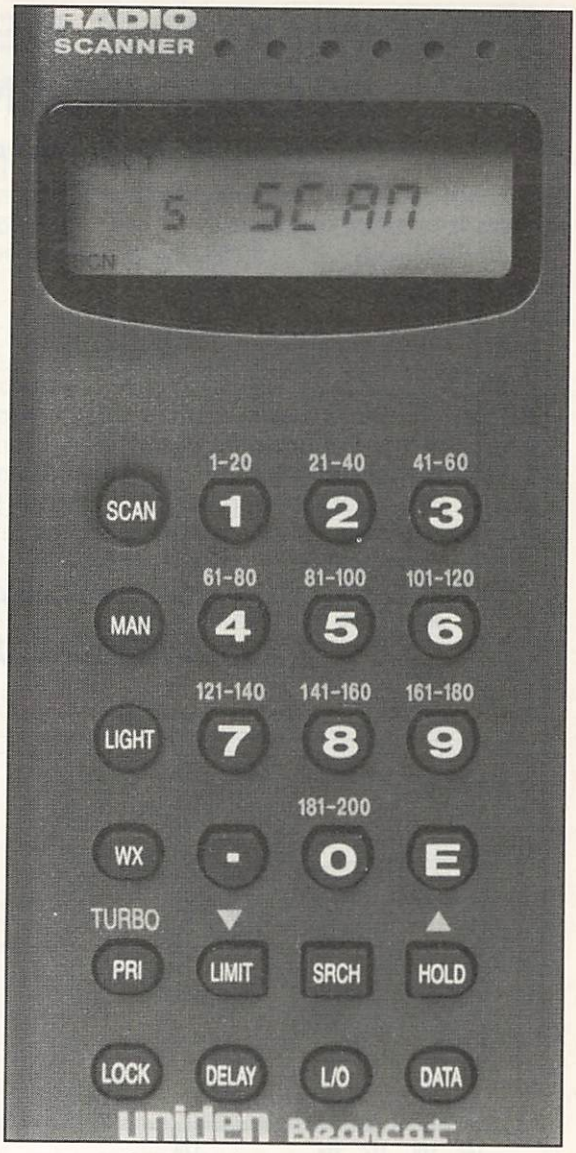
The 220XLT feels thicker than its predecessor but its width has been reduced, which makes the overall package more of a 'pocket' size receiver although the physical volume is only slightly different.

The usual squelch and combination off/on power and volume controls are mounted through the top panel.

Each knob has a raised blade-shaped moulding, allowing the operator to 'feel' the knob's rotational position even in the dark, and a bright red painted graduation clearly shows the way under normal illumination.

The 24-button keypad designations are legible, and the buttons themselves are easy to operate for all but the bluntest of fingers.

The LCD window is adequate in size and remains readable under most normal lighting conditions, but it suffers from the usual LCD 'bug' of being a bit 'watery' when viewed from some angles. Displayed information is comprehensive and information includes:



- Scan banks activated numbered from 1 to 10,
- Priority Indicator,
- BATTery low indicator,
- DATA skip function,
- SEARCH, HOLD, DELAY, channel lock-out and channel number etc.

Features

The 220XLT embodies all the good features of the 200XLT plus a few improvements. Let's first briefly recap the main features for those unfamiliar with the older model. The receiver has 200 memories divided into 10 banks of 20 channels each. Each bank can be loaded with your favorite frequency groups, and any one or more of the banks can be activated or deactivated in the scan sequence at any time. For

....☞

Bandspread

DX-440 TIP

If you own a DX-440 receiver (or Sangean ATS-830), then here is an undocumented way of rapidly switching between two frequencies in the shortwave bands.

This could be useful if you are monitoring the transmissions of a broadcast station simultaneously using more than one frequency for the same program. This procedure requires only a single key press instead of the usual two presses normally required to recall frequencies stored in memory.

Here's how:

Press the SW key. Enter the frequency of the first station. You can enter any shortwave frequency even though it may not be in the band displayed.

Press the AM key. Enter the frequency of the second station. You can enter any frequency as before.

To return to the first frequency, press the SW key. To recall the second frequency, just hit the AM key.

That's simple and a bit quicker than the usual way. Also, both frequencies are retained in memory so the next time you power up the radio they are still available by simply pressing the SW or AM key. Just a simple hint, but can make life just that bit easier.

A HOME-BREW ANTENNA FOR AM BROADCAST LISTENING...

Here is a simple-to-build antenna for use with receivers with internal antennas — generally AM broadcast type receivers. If you listen to distant AM stations with your radio, or have trouble with the receiver desensing due to a strong local station, then this simple antenna could improve your reception dramatically.

The antenna is a passive, inductive-coupling loop device, and there are commercial versions available — but don't let the name put you off, because it really is simple to construct.

Get hold of a 30cm x 32cm or similar wooden picture frame, remove the glass but leave the board picture backing in place.

Notch the corners and drill two small holes (from outside to inside) at opposite corners. Wind 14 to 15 turns of thin wire onto the frame then draw each end through one of the drilled holes.

Mount a 365-500pf variable capacitor right in the middle of the board picture backing and solder one wire end to the rotor and the other wire end to the stator of the capacitor. If you use a small transistor radio-type capacitor, then you could epoxy it into place.

Make a support to hold the device upright and place it near your radio.

Tune the capacitor for maximum signal on the radio and experiment with placement for best results. To null out a strong local signal just rotate the frame until a reduction in signal is noted. Hopefully the desired station is not in the same direction as the strong local station.

Have fun.

INCREASING ICOM IC-R71A RECORD OUTPUT LEVEL

The record output level from an Icom IC-R71A HF communications receiver as standard is generally fairly low — in most cases too low for practical purposes. Don't despair, there is a simple way to increase the output level from the standard 100mV to around 300mV, which is plenty for recording.

Firstly, don't attempt this mod unless you are quite confident of your soldering ability.

Right, open up the radio and find IC6: AN829. (Check the supplied schematic for the location, otherwise you will be looking for a long time.)

Locate pin 8, which is at the upper right of the IC nearest to R170.

Solder a 0.1µF capacitor to the top of R170.

Solder the other lead of the cap to pin 8 of IC6. This effectively shorts out R170 and is a lot easier than removing the main PCB.

This gives an output increase from 100mV to 300mV and is heaps even for recording small signals.

GETTING COAX INTO YOUR SHACK

Many radio enthusiasts operate base, whether it be CB, scanner or HF listening. The comfort of operating from indoors takes a lot of beating.

There are plenty of disadvantages though, and one of those is once you have erected your antenna farm (or are planning to do so) is how do you get the coax into your radio room/corner/cupboard from outside?

Bringing cables through a slightly ajar window is unacceptable from a security point of view, and if your home is built on a concrete slab, then it is impossible to bring your cabling up from underneath the floor. Here are a few suggestions that may help, or possibly spark some better ideas from readers.

One idea is to drill appropriate-sized holes in the wall and insert PVC pipe, up to about 20mm diameter. Drill slightly uphill going into the house so that water cannot leak indoors. A friend recently added a few rooms to his house, and one of them was designated the radio room, lucky devil.

He had the builder run a 50mm diameter PVC pipe through the wall, with a 45 degree angle in it so it came out close to the operating position. In this case running new cables or changing existing ones is very easy.

Due to the bend in the pipe there is little flow of air through the pipe, and bugs can be prevented using the pipe to get indoors by stuffing a big piece of foam into the unused space beside the incoming cables.

If you have run all the cables you want and don't intend disturbing the shooting match for a while, then you could seal up the spare space in the PVC pipe with products like the 'foam in a can'-type stuff from hardware stores. This stuff expands into a gap and sets hard but can be easily removed with a knife.

Another possibility if your gear is located near a small window, is to remove the glass pane and replace it with plexiglass or perspex.

You can then easily drill appropriate sized holes and feed in the cabling that way. You could also use other than a clear perspex in this case, so that the gear is not visible from the outside.

SONY ICF-2010 SSB ADJUSTMENT

Has your Sony ICF-2010 managed to get a bit off-frequency lately? It can become pretty annoying when you are tuned to the exact frequency but the signal sounds lousy and you have to tune off to make it sound right, particularly on SSB.

Right, you tune it so it sounds better, but the frequency as displayed is not *right*, and you know it.

How to fix then??

It is easy, if you are careful, and does

not require the service manual. Naturally, as usual, if you are not confident with taking your radio apart or handling delicate circuitry, proceed with great caution and responsibility, otherwise your radio may not sound well at all after your butcherous work...

What the radio needs in this instance is BFO adjustment. At this point it might be a good idea to make a note of all the frequencies you have stored in memory, as you may lose them during this procedure.

Remove the screws on the back of the radio (including the screw hiding in the battery compartment!) and open up the radio.

There will be a circuit board and the back of the speaker in front of you.

Remove the screws from the board (they have arrows pointing to them) and release the plastic clamps along the edge of the board.

The next step requires some care. Being cautious not to rip out any wires, separate the boards enough so you can get to the bottom of the board that is now loose.

Avoid pulling out any of the ribbon cables for the keyboard here, they are not held there by much. It is possible to move the connectors out slightly during this step and not notice... until you discover that the keyboard no longer works, so be very careful.

Now you should be able to see a metal case labelled 'sync unit', about 18mm x 10mm that is mounted on the board. Next to it is a blue trimmer pot, which is the only pot near that location. This is the BFO Adjust.

Now tune into a strong SSB signal — one which can be clearly heard, and preferably one for which the frequency is known.

Military or aircraft frequencies on HF are ideal for this purpose, since there is a lot of traffic on them and their equipment is normally very close to the correct frequency.

Wait until a signal appears and adjust the pot in VERY small increments.

The pot is extremely sensitive and a small adjustment makes a big difference. Use a non-metallic screwdriver or suitable plastic alignment tool for this, since metal will affect the setting of the circuit.

Once you get the receiver sound to your liking, switch around to some other frequencies in other areas of the spectrum to see if you need to make further adjustments before you close up the radio.

Finally, when you are satisfied with your work, put the 2010 back together again. Make sure the volume, RF gain and tone switch all align with their positions on the case. It is easiest to do this by pushing them all either up or down fully.

This adjustment will also affect the SYNC setting, so if your sync LEDs didn't always light up on the correct frequency, now that should be corrected.

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Online 1994

By Patrick McDonald

***Mea culpa*, dear readers! Yep, that means 'I'm guilty' in Latin, because I was called away overseas on urgent family business just before the last CB ACTION magazine deadline, and couldn't get an ONLINE column down the electronic pipeline to Melbourne Towne. Thanks go to my colleagues on the CBA team for so capably filling in the gaps, while my trusty portable Sony ICF-7600D and I were traversing the land of the free and the home of the brave for nearly a month.**

But that's all past history now, so let's get on with what's new and interesting, and look at more ways you can use your trusty PC in our multi-faceted radio hobby.

You know, I used to worry that there'd be enough newly-released radio-related software to review in each issue.

Now I worry about how I'm going to cover all the damn stuff in one short column!

SPECTRUM INFORMATION DATABASE

Anyhow, it's always a pleasure to be able to recommend new Australian products, and so I'm glad to be able to review a new version of the **Spectrum Information** radio database program, written and now distributed by Andrew McColm in Melbourne.

This is a major update of old SI version 3, which I mentioned in these very pages several months ago, and completely new distribution arrangements are now in force.

Each SI database disk covers all frequencies in a particular state or territory, except for Federal Police frequencies.

(You'll have to find these yourself on your friendly neighborhood computer bulletin board!)

The new company supplying the database is:

Evolving Communications, PO Box 205, Mount Waverley, Victoria 3149.

Author Andrew McColm gives voice support to registered users, and takes orders for SI, on (03) 888 9446.

You can also reach him at **JK Amateur Radio BBS** as noted a few paragraphs later on in this article.

If you're familiar with SI v3, here are the changes in the latest version: the addition of both Location Browse and Trading Name Browse features; a new and highly detailed User Screen available from the browse menu; a new option to print to hard copy; and several modified print options.

Importantly, the database structure itself has been changed, which should mean faster operation and the ability to handle more data more efficiently. Note that earlier registration keys will not work on this or future versions.

Current SI database fields include: user records, frequencies, locations, and trading names.

You can search in all these field or simply browse, record by record.

Naturally, you can also enter, delete and edit all records.

SI sure takes beaucoup de hard disk space, if you'll pardon my French, first to unpack, up to 22 megs, and needs about 30 megs of space overall to create all the relevant index files.

You can kill index files automatically when you quit the program if you want to save hard disk space.

Of course, your next start-up will then be longer, as the index files must be re-created.

SI v4 comes with a six-page manual and full instructions. It's easy to unpack and use, but definitely runs best with a 486, as it takes some time to go through all its data.

Author McColm has already sold copies of his new version to the Melbourne Ambulance Service and both the Queensland and Victoria Police, an indication that the program is very complete and practical.

The improved detailed user record arrangement allows lots of transmitter and antenna information, plus a space for memoranda, and is completely user-editable.

SI maintenance features include configuration of background color, speed of exploding boxes, lines per page when hard copy is printed, printer port and option to automatically kill index files on exit.

Yep, I like the SI database. Anyone who has struggled with old-fashioned printed frequency booklets, filled with inky changes, coffee stains and miscellaneous smudges, with no possibility of quick searches for specific frequencies, names or locations, will quickly recognise that such electronic frequency databases are not the future, but the very useful and concrete present.

Please note that SI is a commercial and not a shareware program. You won't find it on the computer bulletins boards.

The cost for all frequencies per state now $45 (private use) or $85 (commercial use).

ESG FREQUENCY REGISTERS

Boy, this must be the season for Australian-made frequency database programs!

Received too late for a proper review was another set of frequency databases from South Australia, the ESG Frequency Registers.

These programs include individual state and territory listings, covering frequencies from 30 to 520 MHz, showing all frequency assignments made by the Spectrum Management Agency (SMA) for plain-voice, two-way transmissions at five watts or greater.

Each ESG entry shows transmitting and receiving frequencies, callsign, name and transmitter location. Telecom and Optus telephone frequencies are omitted, as are amateur and CB allocations.

Separate, complete VHF-UHF ESG Frequency Registers are also available, showing *all* frequency assignments for all types of transmissions: telephones, facsimile, telegraphy, data and, of course, plain voice.

You can get HF Frequency Registers from ESG too, listing frequencies from 2 to 27 MHz (Standard) or from 100 kHz to 30 MHz (Complete).

Contact ESG at GPO Box 1200 Adelaide, SA 5001 or telephone Richard Barrett on (08) 410 2729 for orders or more information.

Disk prices range from $21.50 to $72.50, with frequency information available in text (ASCII) format, as well as dBase, MS Works WP, MS Works for Windows, Word and WordPerfect, plus various Macintosh formats and ClarisWorks.

I'll try to review the ESG database more fully in the next issue of CBA.

....☞

Online 1994

ID LOGIC RADIO SIMULATORS

Thought you'd heard of everything? Well, here's something completely different, a couple of highly entertaining 'Radio Simulators' from ID-LOGIC in Hong Kong.

The ID LOGIC SW Simulator for Windows, compressed as ID-SW482.ZIP, simulates the shortwave receiver of the (near) future, which will permit the automatic scanning for a station by name, language, schedule or other attributes, such as programming format.

The program contains a number of databases, each for a different international radio station, just as the receiver of the future will contain them... but in this case, you have to supply your own radio receiver!

The screen is very colorful and high-tech... it actually looks like the front of a super-duper receiver. Of course, you can't touch all the dials or push the buttons with your grubby fingers; you have to use your mouse to do that!

Included in the latest version are program schedules from Radio France International, the BBC, Radio Deutsche Welle and the Voice of America.

Created and promoted by Pierre R Schwob of the PRS Corporation, the ID-LOGIC SW SIMULATOR requires an IBM-compatible machine which will run MS Windows version 3.1 or later, and has a VGA display capable of 540 by 480 lines in 256 colors. And you'll also need that mouse or other suitable rodent.

Writes author Schwob, "...PRS started to develop ID LOGIC in 1986. The first product was the ID LOGIC module for AM/FM radio receivers for use in North America. Today (August, 1994) this is on the market in several radios.

"Since 1992 we have been working with the BBC World Service and the Voice of America to develop a module for shortwave receivers.

The open consortium has since been joined by Radio France International."

Apparently Sony, Kenwood, Sanyo, JVC and other companies have already been licensed to use the ID LOGIC software in actual radio receivers, and Schwob predicts we'll see these rigs on the shelves in 1995.

The idea is to permit SW listeners to tune to a station by pressing at most two buttons, one for the desired broadcaster and one for the language.

I tracked down ID LOGIC's AM/FM Radio Simulator as well, which contains considerable information on some 14,000 North America medium wave (AM) and FM radio stations. Under the compressed file name ID_NA481.ZIP, this program looks very similar to its SW Simulator brother. The user can choose to set up her or her radio shack in an American or Canadian city and then search, simulation-wise, for audible AM or FM radio signals using any number of search criteria.

Lots of fun?

Yep, sure is.

Useful?

Well, maybe not yet. I mean, you can use the simulation program as a database to find out about North American stations, but it's of extremely limited practicality here in OZ, except for hardcore medium wave DXers.

So this ID LOGIC package is software without the necessary hardware, so to speak... a great idea for the receiver of the future.

I can certainly imagine a portable radio with a tiny inbuilt computer which searches for any station I want, based on my choice of program format, signal strength, or frequency.

But we'll all have to wait for the receiver market to catch up with this one.

RADIO INFO ON THE INTERNET

Okay, now for some more INTERNET information. But be honest... aren't you getting tired of hearing about the INTERNET virtually every day?

I mean, I've been asking myself as well, isn't this really an electronic Birdsville Track some of the time?

And isn't a lot of what you read and see about 'The Net' pure hype?

Well, yes and no.

The media folks (and I guess this might include me,) love to build up this sort of fad, and I know the electronic connections to my own computer aren't always of humungous motorway proportions.

Nevertheless the real truth is, there's an enormous amount of information out there that can already be accessed, right now, simply by using your own computer and modem, from your own home, and much of this stuff is of great interest to radio users.

Moreover, it's hard to see how this electronics network isn't going to get bigger and better.

Maybe not tomorrow, or next month, but certainly in the coming 5-10 years. I'd bet real money on it!

So what can a radio buff do with the INTERNET at the present?

Well, I'll give a few examples in this

COMPUTER BULLETIN BOARDS FOR RADIO BUFFS

But before we close, let's take a bit of printer's ink to review some Australian computer bulletin boards where you can start looking for radio-related software:

SPECTRUM RADIO BBS now has two telephone lines and brand new Remote Access BBS software as well. Try Michael Evans' system 24 hours daily on either (03) 459 5837 or (03) 455 1309.

THE RADIO SHACK BBS, run by Simon Kay and Dave Onley, is a good place for radio amateurs to seek out packet radio information, as it operates as a packet radio gateway. Try this system 24-hours daily on (03) 532 5737.

JK AMATEUR RADIO CLUB BBS is on (03) 888 7741 under the care of sysop Andrew McColm.

Chris Keladis' **THE TWILIGHT ZONE** in Sydney carries a lot of radio software on (02) 750 6117, also available 24-hours daily.

Finally, don't forget Paul Britton's **SATCOM AUSTRALIA BBS** on (02) 905 0849, for all your satellite DXing software requirements and the latest satellite elements for tracking software.

The venerable Sydney-based **SHORTWAVE POSSUMS BBS** is naturally still alive and well on (02) 651 3055, and accepting all modem speeds up to 14,400 bps.

By Patrick McDonald

issue, as I did two issues ago, with apologies that I can't explain in detail how to connect to service providers and so forth. (Maybe CB ACTION will run a feature on this mother-of-all-nets in an upcoming issue? Whaddya think?) And I can confirm that I've achieved all this myself, in the past few months.

First of all, you can TELNET via your local service provider to the BBC Networking Club in London. Is this really going to become a reliable source of 'Beeb' info on-line?

First reports are that this new server is a tie-in with a BBC2 production called 'The Net'.

The INTERNET address you want is auntie.bbcnc.org.uk 9999; TELNET there and you'll find a kind of INTERNET computer bulletin board, where you can exchange messages with other users and BBC World Service reps as well as find current BBC program schedules and other information.

If you simply want to send a message to the BBC, electronic mail should go to the-net@bbcnc.org.uk; if you simply want to pick up text files, such as program schedules, use the standard FTP (File Transfer Protocol) function go to ftp.bbcnc.org.uk and follow the directories as indicated.

The information superhighway also cuts through the jungles and mountains of South America to reach the famous Voice of the Andes.

Radio station HCJB has established its own anonymous FTP site (by the name of nw311.hcjb.com.ec) providing schedules for each of their foreign language services.

From all reports, it appears that this station, run for decades by a North American religious group, is fully committed to the INTERNET, and plans to use the medium very fully.

Contacting radio stations aside, another helpful use of the INTERNET is getting new executable files, just as you can pick them up off local computer bulletin boards.

One of the best sites is the Finnish site ftp.funet.fi, where a great many types of radio files are kept and updated daily. In fact, here is a list of a number of useful FTP sites, each followed (after the first slash mark) by the directory or directories where you'll find the relevant radio-related files, program schedules and sunspot reports:

142.66.3.29/pub/solar/Weekly
142.66.3.29/pub/solar/Daily
142.66.3.29/pub/solar/Indices
thumper.bellcore.com/pub/radio/shortwave
ftp.funet.fi/pub/dx
ftp.funet.fi/pub/dx/text/utility
ftp.funet.fi/pub/dx/text/schedules

This will have to be enough about the INTERNET for now, radio folks. But I trust you'll be hearing more about promoting radio info via the happy electronic trails in the near future!

SWP BBS DISK OFFER

Interested in all this software but got no modem? Poor you! Nevertheless, all is not lost. I will personally post you a selection of the shareware (not commercial) packages reviewed in this column if you send $35 plus six formatted floppy disks to the now legendary address:

Shortwave Possums BBS
attn. Patrick McDonald,
PO Box 357,
Round Corner,
NSW 2158.

I'd strongly suggest sending either 1.2 meg or 1.4 meg floppies if your computer accepts these sizes.

The old-fashioned 360k ones will do, but I won't be able to fit as many programs on them!

Regular ONLINE readers know that I'd prefer that you get a modem and pick up your software via the BBS, but I can cope with a moderate number of 'manual' inquiries for the time being.

However, please take my advice and investigate the new high-speed 14,400 bps modems now available for quite reasonable prices.

You'll be glad you did!

Now, sad to say, this column is over for another issue, boys and girls.

But please use your modem to be in touch over the coming two months with your ideas and suggestions via SWP BBS on (02) 651 3055, which is FIDONET 3:713/605.

All the shareware programs reviewed in ONLINE are available there too, once you have completed the registration process.

And electronic mail will reach me safely via the address **patrick@sydgate.apana.org.au** on the INTERNET.

Bye now!

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The LISTENING POST

NSW FIRE BRIGADE UPDATE

Brian Blunt, historian for the Museum of Fire in Penrith, NSW, advises that the Fire Brigades have divided Sydney (indeed, the whole of NSW) into four regions, identical to those of the NSW Police. This replaces the six districts listed in most frequency guides.

The new channel allocations are: **ch 1**, northern region; **ch 2**, southern region (includes Sydney); **ch 4**, north-west region; and **ch 10**, south-west region (included inner-west suburbs). **Ch 3** remains the command channel and also includes specialised fire-fighting 'appliances' not attached to specific stations (such as breathing apparatus) and the radio workshops. The same channel-frequency sets are in use, only the channel-region pairing has changed.

New codes introduced include **Code 7** (to indicate the departure of an appliance from a fire station, or a response if they are out of the station) and **Code 95** (request for attendance of the Fire Investigation Unit, officers of which use the callsigns 95-1, 95-2 and 95-3).

HOTHAM HEARD HERE

Nick Evans of Perth asks what frequencies are used by the Hotham Valley railway, a tourist railroad which runs restored engines and carriages in WA. Railscanfan Russell Bryant says that to the best of his knowledge they don't use any two-way on their own private line, but when they venture onto main lines operated by WestRail they use the appropriate frequencies for that line.

VICTORIAN SES CODES

Andrew Martin, from the Wodonga Local Unit of the Victorian SES, says that the nearby Albury/Hume Unit of the NSW SES, which presently uses 168.820 simplex and 172.170 duplex (along with divisional staff) plans to move to the three SES-allocated channels in the national 64ch UHF police system towards the end of this year or early 1995. These are channels 31, 32 and 33 in the police system; the Victorian SES have divided them into six allocations: **ch 1** is duplex, output 468.600 (input 459.100) which is police ch 31; **ch 2** is duplex, 468.625 out, 459.125 in (police ch 32); **ch 3** is duplex 468.650 out, 459.125 in (police ch 33); and channels 4, 5 and 6 are simplex spots which use the output of the paired channels 1, 2 and 3, respectively. Andrew also gives us a list of repeater channels used by the SES regional offices: Central (Melbourne), North-East (Wodonga) and South West (Hamilton) regions use ch 1; East (Bairnsdale and Moe) and the Mid-West (Ballarat) can be heard on ch 2; with Central (Geelong), North (Bendigo and Shepparton) and North West (Swan Hill) on ch 3.

Standard codes for all Victorian SES units are as follows, however others are often added to this list by local SES units, says Andrew:

01 accident
02 sick or injured person
03 dead body
04 drowning
05 member requires assistance at...
06 electrical wires down
07 explosion
08 road obstruction
09 premises open but no-one in attendance
10 task too dangerous to undertake
11 missing person
12 telephone HQ as soon as possible
13 local flooding
14 evacuation anticipated

SES A-OK FOR NSW GRN

The Sydney area of the NSW State Emergency Service will go online on the new Government Radio Network (GRN) towards the end of this year, writes the ever-reliable Rick Jones."The existing channel 4 repeaters (designated ch 5 and ch 6 at Dural and Kurrajong) will still be used in the interim to give adequate coverage and will appear on the GRN as channel 70-something. "The Bush Fire Service is also considering coming online, but it is doubtful that it can introduce the system prior to the fire season commencing (especially since the fire danger period was been brought forward to 1 September)."

QUICK CATCHES

• Michael Evans logged the following during the TV Channel 9 concert to raise funds for Rwanda refugees: 486.425 was used for communications between the director and floor crew, with 486.375 as a program feed.

• And if in Sydney, for some real radio action, listen to Lucas Heights on 485.375 (the police also have a base site on 468.475, says Michael Evans).

• Ian Clark has verified these shopping center channels for Melbourne: 450.475 for Whitehorse Plaza; 469.650 for Doncaster, 450.425 for Forest Hills Chase and 466.750 for Knox City. I'd like to run a whole lot more shopping centre frequencies next month, so please let me know what loggings you've made!

SCANNING IN ACTION

Sydney scanner fan Avo Ohanian relates this tale of just how handy a scanner can be:

"When the bushfires were on at the beginning of the year I was in St Ives at a relatives place and we got evacuated. My hand-held Yupiteru scanner ran for about six hours straight locked into the local fire brigade channel, and we sat and watched the tankers rushing water to the St Ives showground.

"In fact, when we were evacuated I was still using the headphones (stupid to go there with police everywhere and have the scanner blasting away!), and eventually one emergency services fellow came and asked what this strange-looking radio was. He turned out to be an avid scanner buff and asked if I could leave it on the in-built speaker instead of the earphones, as he didn't have the Fire Control frequencies at hand. A lot of people that day appreciated the hand held being there — even my relatives started to think that I was sane after all!"

On a sorta-kinda-related note about being prepared, what's rule number one? Get the gear in order and *keep* it that way. For monitoring emergency situations, this means drawing up a list of local frequencies likely to be activated in an emergency (it's likely to be a wide-ranging list). You can then keep the list handy in your little black book, or plug

them straight into your scanner (this is best done if your scanner has memory channel banks, so you can lock out the emergency bank and only activate it in those times of strife when the Bat-Signal is seen in the sky). And don't forget, if you've got a portable scanner, make sure the batteries are always charged.

I got caught this way a few weeks back, when a major lightning strike sent a high-voltage howdy down the lines to a nearby power box and derived my home of power for two straight days (the electricity people managed to jerry-rig power for each night — just as well as we were in the middle of a very cold winter at the time). And guess whose hand-held scanner was out of juice? Mine! So if you're serious about *really* putting the scanner to its best use in times like these, be prepared.

PRACTICAL ADVICE

Elsewhere in this issue you'll find a first-rate article by our Jason Reilly, our man in Tassie, on the art of practical scanning. It's full of real-world hands-on notes on getting more from your scanning, and I thoroughly recommend you read and enjoy it.

CALLING ALL CARS IN CAIRNS

More hot tips from Steve Bottom, who's had his scanner working overtime in recent months to keep local listeners in the know. The frequencies listed as 'trade' are host to a number of users.

166.240 Security Service (possibly Wormalds)
166.765 SMA
168.565 Qld Railway Hand-helds
413.475 Qld Railway
413.625 Fire Brigade Link
413.675 Ambulance Link
414.275 Qld Railway
418.275 Qld Railway
419.375 Q-Link Trucks Cairns
450.325 Pager
450.625 Taxis
450.650 Trade
450.950 Tone Pitch Only
452.875 Trade
453.175 Trade
453.775 Trade
464.725 Qantas
485.550 Red Cross
485.675 Trade
485.825 Trade
485.975 Trade
486.100 Mobil Fuel Tanker
486.600 Back Hoe Driver
486.900 Delivery Vehicle
487.175 Trade
487.200 Trade
487.475 Trade
487.500 Trade
487.800 Coach & Limo Hire
487.850 Trade
488.075 Trade
488.300 Trade
488.700 Trade
489.000 Coach Company
489.050 Trade
489.275 Trade
489.325 Trade
489.575 Fertiliser Trucks
489.950 Yarrabah Community
491.525 Trade
491.675 Trade
491.700 TNT Australia
491.975 Trade
492.275 Trade
492.325 Courier Company
492.875 Tanker Trucks

MORE FROM QUEENSLAND

Lance Noll adds these to his Toowoomba tally, logged through his trusty Diamond D active antenna.

404.425	Police (local S-E Qld link)
404.650	Toowoomba City Council
413.625	Police (link for 76.430)
415.7125	Transport Services
416.7125	Transport Services
416.975	Qld Rail
417.7125	Qld Rail
418.175	Qld Rail (shunting at Toowoomba station)
418.300	Qld Rail (shunting)
418.475	Qld Rail

Plus this batch for the MSR (Maintenance and Supervisor, Radio) network: **ch 1**, 411.375; **ch 2**, 418.175; **ch 3**, 418.475; **ch 4**, 418.775; **ch 5**, 419.075; **ch 6**, 419.375.

And for statewide VHF listening, Lance recommends the following police allocations: 76.355, 76.400, 76.430, 76.490, 76.550, 77.300, 77.375, 77.420 77.450, 77.480, 77.510, 77.540, 77.570, 76.520, 76.460, 76.445, 77.465, 119.100, 131.600 and 160.120. "Another interesting one is 468.675, ch 34," says Lance. "This is the emergency liaison channel, which allows all the emergency services to have communications with each other."

AR 8000 SOON

There have been a number of enquiries about the new AR8000 and when they will be available. Well they're available now from all Access Communications outlets and a full review of this interesting newcomer will run in the next issue.

THE GOOD OIL ON ESSO

Darren Crick has been all ears to Esso's Longford rig in the Bass Strait, and offers:

70.160 (primary channel), 71.570, 126.400, 129.700 and 129.750 (helicopters), 167.770 (technical staff), 427.000, 463.000, 463.950 and 464.500.

Callsigns heard include the following: VH-EMI (Echo Mike India) and VH-EMJ (Echo Mike Juliet), both of which are Bell 212 choppers; plus VH-EML (Echo Mike Lima), VH-EMM

....☞

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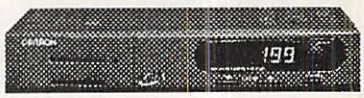

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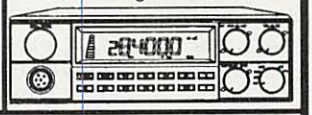

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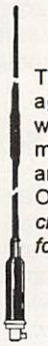

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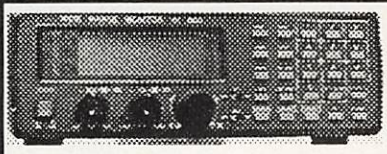

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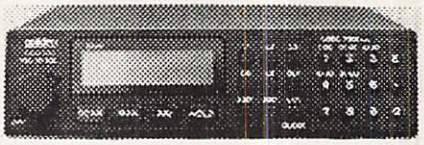

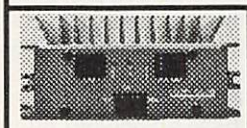

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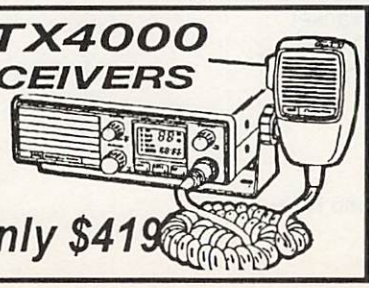

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The LISTENING POST

(Echo Mike Mike, also known as Mickey Mouse), VH-EMN (Echo Mike November) and VH-ECS (Echo Charlie Sierra, all of which are Sikorsky S-76 choppers).

Ships include the Kurnai Tide, Pacific Tide, Flinders Tide, Canning Tide and Lady Caroline.

THE LITTLE BLACK BOOK

Tom Armstrong of Perth wrote to ask what frequency references I use.

First things first, then... I don't have much in the way of a scanner infobase. There's no massive database on my PC. The only scanner-specific references on my bookshelf are Russell Bryant's **Handbook of Australian Railway Frequencies** (not because I'm a train buff, but because it's an autographed copy and it might be valuable one day!), Bob Bell's **Listening In To Aircraft Radio** (also autographed and thus with potential for Sotheby's, as well as being a darned good read) and the **Access/DSE Register of Australian Government Radio Frequencies**.

And I refer to these fairly irregularly, because all of the stuff I listen to (mostly police and media) is already in my scanner. In previous columns and articles I've often made passing reference to a 'little black book' in which frequencies can be kept, so Tom also wondered if this 'Little Black Book' was some kind of frequency register he could buy.

Well, yes and no... the Little Black Book, Tom, is for my money the best frequency directory you can get, but you can't buy it anywhere — because it's a do-it-yourself job. This is precisely why I reckon it's so good.

Let's go into the Little Black Book in a little more detail.

This system is designed to be flexible, expandable and customisable, so the basis of it is a two-or three-ring binder which you can pick up at most larger newsagents and stationery stores.

Make sure it uses the standard-size rings which can be punched into any sheet of paper with a hole-punch... some pocket organiser-style folders have four or five holes in a unique arrangement and you've got to buy a special (and over-priced) hole punch to suit.

My favors lean towards portable scanning (either with a hand-held or in-car unit), so I've always considered the Little Black Book best-employed as an equally-portable aid.

This means you'll be looking at a binder which is A5 (half the size of a standard A4 page) or even A6, which is half A5 (quarter A4).

At the same time, buy some tabbed cardboard divider pages — either a set of alphabetical A-Z tabs, or five or six blank tabs.

Also purchase some blank paper 'fill', or get some A4 paper and trim it to A5 or A6 size and hole-punch as appropriate.

From here on, the design of your Little Black Book is up to you. It all depends on how you scan, where you scan and the sort of information you want to have at hand.

One approach is to the use the A-Z tabs to divide your Little Black Book into specific services — A for ambulance, B for Bush Fire Brigades and so on.

Each service can have all the frequencies, channels, codes, callsigns and other operational details.

If you travel around, you could use the alphabetical tabs to list all the services in each town, so you've got a complete listening guide at a glance.

If you choose to add some blank tab divider sheets you can create your own headings and sections, based perhaps on specific services or categories. It's easy to add more pages to the ring-bound folder as your list grows, or re-arrange your Little Black Book as your listening habits change.

If you happen to have diagrammatic material — perhaps a map of city police districts or the local airport strips — you could photocopy these into single-sheet reductions or, in the case of an A5 binder, hole-punch one side of an A4 sheet to create a fold-out map.

If you clip a pen onto the folder (I recommend a felt-tipped pen, as the ink of a ballpoint is likely to dry or blot unless it's in constant use) you can always jot new frequencies, codes or callsigns on the go.

This is perhaps the most important part of the Little Black Book strategy — keeping it up to date, just as you would your address book.

That's it for another issue. Keep scanning and keep sending those reports to:

The Listening Post at
PO Box 24,
Glenbrook,
NSW 2773.

MY SAY

Every now and then I get the soap box out, or I suddenly have a bright idea which for one reason or another cannot be suppressed. From now on, when the rush of adrenalin hits me, I will put fingers to the keyboard and release my frustrations or brain waves right here. It will be ***My Say****.For some time now, a friend (a firefighter in Victoria) and I have been exchanging audio tapes of each other's emergency services. The inability to travel interstate on a regular basis to monitor what it is like elsewhere is removed to a degree, thanks to the tapes.*

While listening to a tape of some radio traffic from south of the border, the idea of establishing some sort of radio tape exchange program occurred to me. For example, remember the ***CONTACTS*** *section of my old SCAN column? Readers could have published their name, address plus anything that interested them. Other readers could then respond to the individuals directly. Based on a similar setup, an insert my look something like this;*

NAME: John Smith
ADDRESS: PO Box 12, Smithville 9999
REQUIRE: Fire tapes from Jonestown
HAVE: Police tapes from Everywhere

So how about it? If you are interested please write to me:

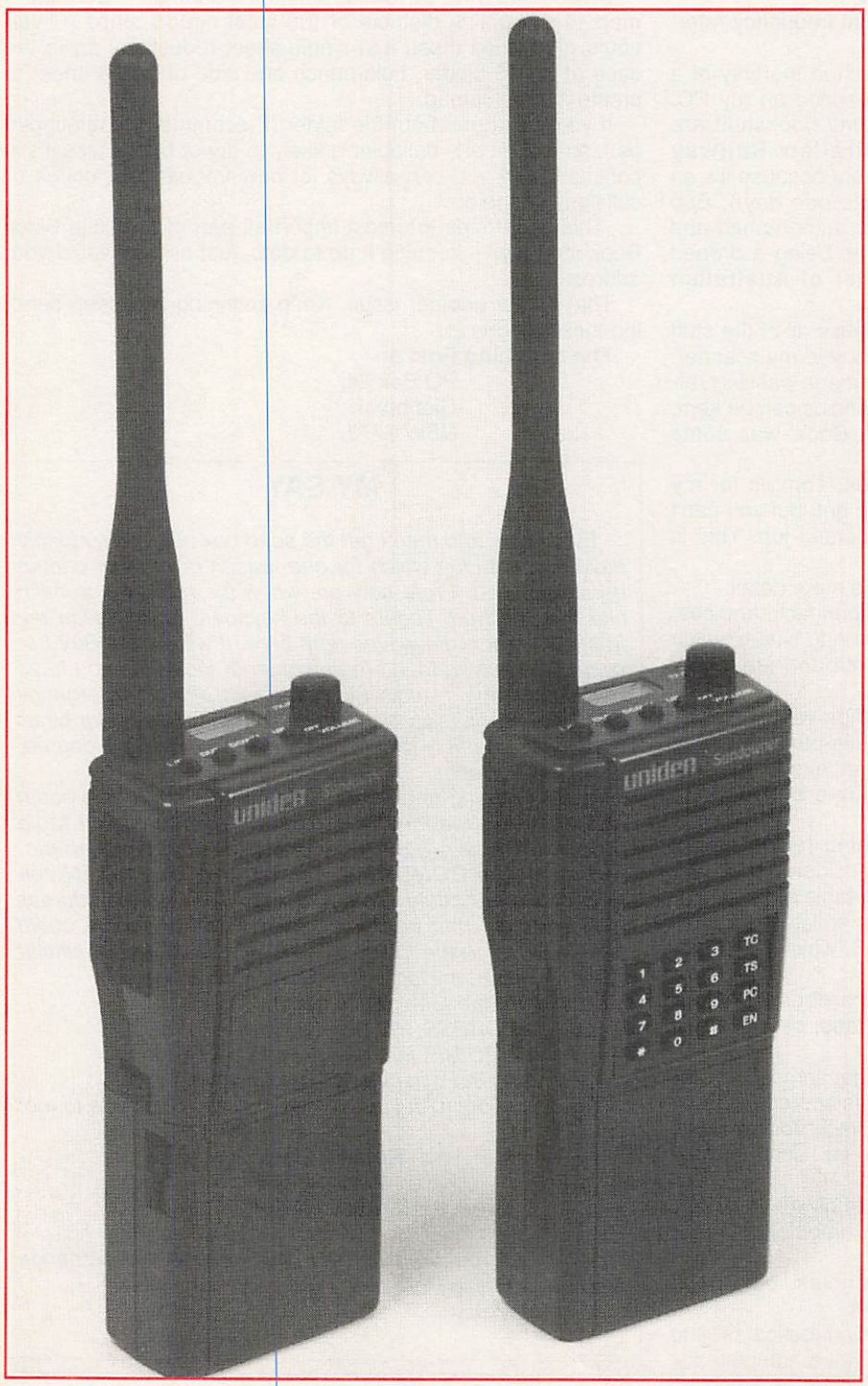
Russell Bryant
PO Box 344
Springwood NSW 2777

If enough readers reply, I will coordinate the exchange through Listening Post.

That's My Say.

Uniden gets it right with the new...

UH-056 and UH-057 (with Selcal) HANDHELDS



Ladies, we are here for the running of the New Market UHF Hand-Held Stakes to be held here in the Winter and Spring of Nineteen Ninety Four.

All entries are settled behind the gate waiting for the starters bell... a-n-d there's the start... a-n-d they're away and racing.

__P65__ out of Philips made an early break for the lead but __IC-40GX__ out of Icom has made a quick dash to overtake the leader with the Uniden substitutes UH-056 and UH-057 coming up from the rear of the field. It looks like Icom in the lead now there followed by P65 and the rest of the field following up behind.

But wait a minute folks! With only metres to go in this the UHF race of the year, the two unknown Uniden entries have pulled out wide of the field and are tearing up the turf in a blistering attack on the leaders...

And this is how we see the **1994 UHF Stakes** at the moment.

In fact, with the release of its two new UHF hand held portables Uniden is set to lock horns with both Philips and Icom in the most hard-fought market share battle we have seen in years.

Philips entered the race first with the **P65** well priced, and offering great performance with plenty of optional add-ons — but with no SELCAL available, up to date anyway.

Icom stormed onto the scene shortly after that with its ultra compact **IC-40GX** offering its usual sleek, well-researched approach to the market. Offering user-programmable SELCAL as standard and a host of other flashy features, Icom seemed to have targeted the top end of the market with a RRP of around $770.

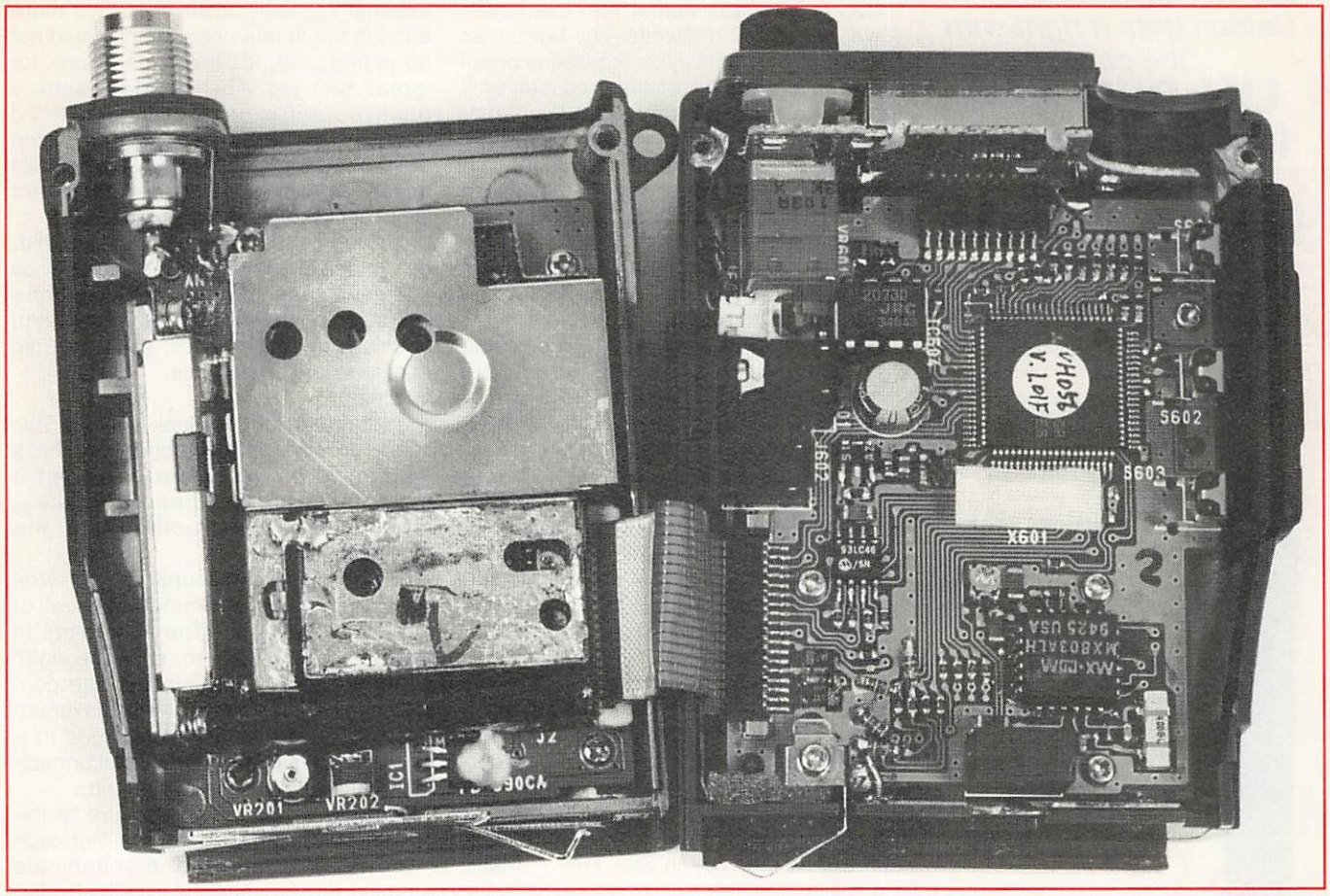
With an alluring introductory offer of "...buy an IC-40GX and get up to $200 of accessories free..." Icom *had* to attract an instant following.

Uniden's new **UH-056** enters the market in direct competition to the P65 offering almost identical features right down to the TNC antenna socket and optional high and low power battery packs, but with a RRP of just $499 for the standard battery model there could be a fair bit of in-fighting taking place for some time.

The **UH-057** blasts onto the UHF scene with the IC-40GX right in its sights, offering many similar features but at a RRP of $599 for the standard battery version.

It also offers user-programmable five-tone SELCAL with none of the Icom restrictions.

Having set the scene for the battle, let's evaluate the Uniden armaments on



an equal footing with its rivals.

Compact is the name of the game and the Uniden portable, although the largest of the three main competitors, is only *marginally* larger and still falls into the general category of "pocket-sized".

Mechanical dimensions are 67.8mm wide including carry strap mount, 37mm deep without belt clip and 147mm high excluding the antenna, of which the standard battery pack accounts for about 57mm when fitted to the radio.

The UH-056 and UH-057 are almost identical in every respect, except the latter has a little extra internal circuitry and an enhanced numeric keypad which includes the star (*) and hash (#) keys and an extra vertical row of keys.

From the top, these are labelled: **TC** (Tone Call), **TS** (Tone Set), **PC** (Priority Channel) and **EN** (Enter). On the top panel the two radios have identical features to each other.

An LCD viewing window occupies the central rear, sandwiched between the TNC antenna connector and a dual color/function LED indicator.

The front edge of the panel holds a horizontal row of four buttons which, from left to right, account for Scan channel Lock Out, DUPlex operation on approved channels, DOWN channel stepping and, last but not least, UP channel stepping. This latter key also activates the programmable Channel Scan function when pressed and held for about 1.5 seconds. The overall color scheme is a sombre, heavy charcoal grey with black antenna.

This is lightened somewhat by highlighted function buttons and trims with white function designations and 'gold' Uniden Sundowner decals. The rear half of the transceiver case is die-cast metal alloy (an excellent heat sink) which is painted in a very flat, matte grey finish.

Features

Let's look at the **UH-056** first, as this radio forms the basis for both transceivers. A single rotary combination control for audio volume and a customary 'clicker' turns the power on and off. Channel change is accomplished via the previously-mentioned DOWN and UP pressbuttons. A single press of the DOWN button decrements the displayed channel by one channel per press and each step is accompanied by a double 'beep' from the loudspeaker.

To down step continuously, you press and hold the button down, and the UH-056 responds with a channel step rate of about four channels per second (or, if you like, the whole 40 channels in 10 seconds). In this mode it emits a single 'beep' for each individual step.

In the UP mode you again get one channel increment per button press, this time accompanied by a single 'beep' per step. A flashing channel display denotes the channel is 'tagged' and locked out of the SCAN group. To add or remove channels from the scan sequence you just select the desired channel and momentarily press the L/O button and the display will toggle from one state to the other, thus indicating its condition.

To enter the SCAN mode you hold the UP button for about 1.5 seconds.

The display will then step continuously until it finds an occupied channel. SCN is displayed in the LCD window when the scan function is active.

Selecting repeater operation is simply a matter of pressing the DUP button to activate or cancel the function on individual channels one to eight.

DUP appears in the display window against active repeater channels.

A rubberised panel on the left hand side of the transceiver accommodates the PTT switch in the center and the High/Low power switch at the lower edge.

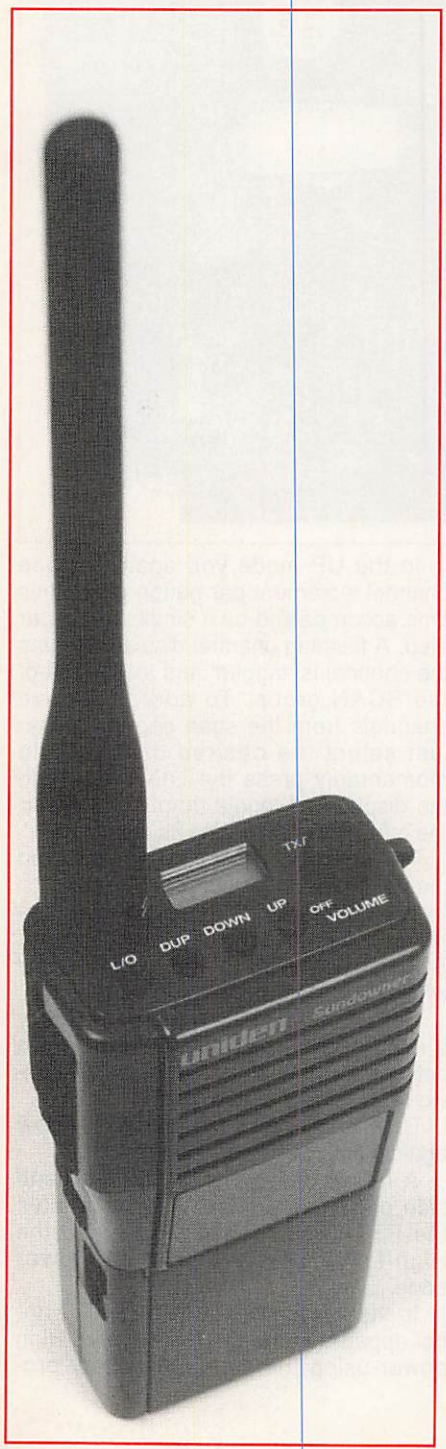
In the low power condition a LO symbol appears in the display window. High power using the standard battery pro-

....☞

Uniden gets it right with the new...

UH-056 and (with Selcal) UH-057 HAND-HELDS

(continued from previous page...)



duced 3.6 watts output and low power was set to 210 milliwatts. The low power level is adjustable via a recessed control on the underside of the transceiver. I mention this so users will know what NOT to mess with should they get their hands on a UH-056/057 portable. The Mute/Squelch defeat switch toggles an automatic mute circuit off and on, and is located at the top of the flexible panel.

The automatic mute threshold was set at 0.25 microvolts on the test rig — perhaps a tad high for some users.

The receiver sensitivity is acceptable at 0.26 microvolts for 12dB SINAD, but not quite up to either the P65 or IC-40GX, which both offer less than 0.2 microvolts for the same reference.

For those who aren't quite up with this terminology, you could look at it as the Uniden pair being about an S-point or two behind its opposition rigs.

The lower this figure the better, and you'll find most VHF/UHF amateur rigs these days around 0.15 to 0.18µV, which is vastly better.

If anything is going to cause a possible headache with these two new portables, the just-adequate receiver performance could be it. Consumer expectation of receiver sensitivity these days is higher than ever, and we already know that Uniden can produce the goods.

So, as they say in Star Trek... 'Make it so!'

Recovered audio...

Recovered audio is quite good too and responds well to the use of an external speaker, however, a little more effort in the timbre department would not go astray... ie, it's pretty good but not 'great' just yet. The standard battery pack supplied is a 7.2 volt NiCd rechargeable type rated at 700 milliamp hours. It slides snugly into place on rails at the bottom of the transceiver and 'snap' locks securely into place.

On the right hand side of the rig, hidden under a tailored rubber trap-door, is the usual pair of side-by-side phone jacks for connection of a combination speaker microphone, or, separate mic and speaker components.

Bingo!!

A standard off-the-hook speaker mic seems to work on this model, and that's a big improvement. Before we tackle the more advanced features, let's take a look at the construction and the electrics.

Mechanically, the unit is very well built, and it has an immediate feel of solidity and quality. The case parts fit tightly together with no 'she'll be right' gaps around the joins. Inside, the construction is even better, with maximum use of Surface Mount techniques in a two main board assembly interconnected by a flexible plug-in mylar strip.

While one can never be sure at the beginning of a model run, the high-tech internals and 'spot-on' mechanicals promise the prospect of excellent reliability.

Get set for SELCAL

The UH-057, as mentioned earlier, is

Uniden gets it right - to a point!

*Since **GME** released the TX-4000 UHF mobile CB transceiver we have received numerous complaints about the restrictions of the built-in five-tone SELCAL. Only the last four SELCAL tones are selectable by the user. The first digit of the five-tone sequence is decided by the factory or, for a small fee, a TX-4000 can be reprogrammed to personal requirements by a GME dealer armed with a PC and the special Electrophone proprietary software.*

Yep, we thought it was pretty dumb too. After all, the object of programmable SELCAL is the ability to page any combination of about 100,000 different user numbers — not just one tenth of the possibilities. How would GME like it if Telecom cut-off their telephone's first digit dialling capability?

*Meanwhile, **Icom Australia** has just experienced a mini boom in UHF CB sales with the release of its brilliant new IC-40GX which also includes five tone SELCAL. However, customer elation in many cases soon turned to disappointment, and sheer hostility in some cases when they realised only the last two digits of the SELCAL were user-selectable.*

For example, customers who bought a radio from the first shipment and a second set from the next shipment found they were unable to SELCAL from one set to the other without the intervention of an Icom dealer to reprogram at least one of the sets with matching tones for the first three digits. And furthermore, Icom suggests that their dealers should charge a reprogramming fee for this service.

***Uniden**, on the other hand, has identified the need for user access to all five digits of the SELCAL code and has sensibly provided full selectability in the new **UH-057** UHF CRS portable, hand held transceiver.*

Good one guys but read the panel on the opposite page!

a market-enhanced version of the UH-056 which includes a user-programmable five-tone SELCAL capability which allows the user to change almost *all* the parameters. I have not yet met a UHF CRS SELCAL user who is really happy with restricted use of a so-called programmable facility when access of up to 99,900 tone combinations are withheld from their use. In fact, it made many users angry to pay top dollar and end up feeling a bit cheated. Uniden, with this new release, now leads the way in this area. Without going into the complexities of the UH-057 SELCAL — mainly because we want to produce a magazine, not a book — we will just breeze through the possibilities now open to the UHF CRS fraternity. Three new icons appear in the UH-057's LCD display window: **TSQ** for Tone SQuelch, **CAL** to indicate receiving a SELCAL, and **PRI** denoting Priority channel active.

Recapping on the custom keypad buttons, the symbols and their appropriate functions are set out below:

* Accesses tone period programming — tx, rx and lead-in tone.

\# Accesses lead-in delay — tx, rx and lead-in tone.

TC Sends out selected SELCAL tone burst.

TS Sets desired channel as SELCAL channel.

PR Press to set or remove selected priority channel.

EN Press after entering channel number via keypad. Press also to store tx, rx SELCAL code, lead-in tone, lead-in delay and tone period.

So, there you have it.

Fully-programmable SELCAL via the keypad with no soldering or unexpected programming fees. The users can even change their receive SELCAL code as many times as they want without a trip to the local CB shop.

Unfortunately, in giving this *ultra* flexibility to its users, Uniden may have overlooked one important point — that could if misused prove a torment to those operators whose present SELCAL has the Group Call facility activated.

You see, the UH-057 is *so* programmable that it is possible to transmit a Group SELCAL code covering a block of ***10,000 SELCAL numbers*** all in one press of the button.

Other than the couple of grizzles in the review, these new units look set for an enthusiastic welcome from UHFers.

But, you cannot group call a TX-4000

To test the hypothesis of GROUP calling huge blocks of SELCAL equipped radios we assembled a range of UHF CRS rigs all fitted with SELCAL and proceeded to put them through their paces.

Remember, you can't GROUP CALL a radio if the facility is not included or activated.

Most older style SELCAL fit outs are restricted to one transmit code and one receive code group. In the majority of these rigs the Group Call facility is not active so they will not respond to the extra tone. If active the facility can be easily removed.

Here is a summary of our findings:-

Uniden UH-057 can Group Call Icom IC-40GX but not GME TX-4000.
Icom IC-40GX can Group Call Uniden UH-057 but not GME TX-4000.
GME TX-4000 can not Group Call either Uniden UH-057 or IC-40GX.

Following further tests, we now think the SELCAL Group Call incompatibility is a result of mixed standards.

Although we are using the International Standard CCIR prescribed tones, some distortion of tone period (length of tone) has evolved between what is recognised as the Australian Standard and the European/Asian Standard.

The standard GROUP TONE frequency is 2400Hz and it is substituted for the standard Numeric Tone value when Group Call is selected.

In Europe however, the Tone Period is equal in value to one normal numeric tone time period.

In Australia, an EXTENDED time period has been adopted and the Tone Period is generally three times longer than its European counterpart thus and the decoder will not respond to a shorter tone albeit the right tone frequency.

GME's TX-4000 uses the long Tone Period while the Uniden and Icom products use the shorter Tone Period.

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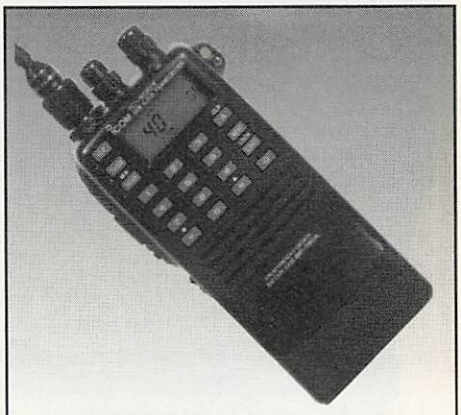

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DICK SMITH ELECTRONICS

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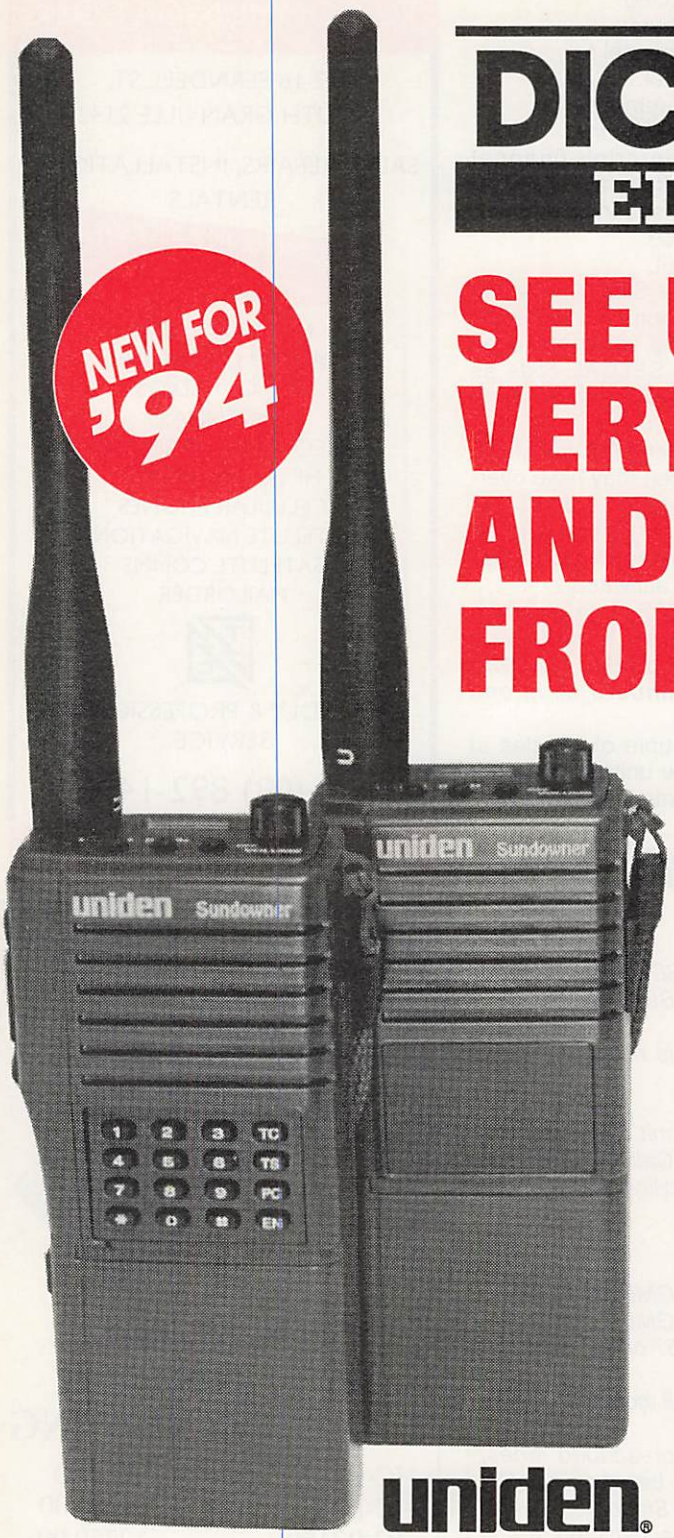


Handheld UHF CBs

Great new handheld CBs from Uniden! The UH-056 and UH-057 provide a host of features including very compact size, switchable 1w/5w max output, channel and Priority scanning, and inbuilt Selective calling facilities (UH-057 only), and all at very reasonable prices!
Both units offer full 40 channel UHF CB coverage, simplex/duplex operation, an informative LCD display with backlighting, user programmable channel scanning, a battery saver for longer battery life, and battery-free memory back-up. For easier operation an auto-squelch system is provided, along with a two-stage "Battery Low" indicator so you'll know when the battery pack needs re-charging.

The UH-056 and UH-057 are physically the same size (68 x 37 x 150mm), however the UH-057 is provided with a front panel keypad for direct channel number entry, and for use of the extensive Selective calling facilities. Selective calling allows for the silent monitoring of a channel until you're called (or call) a particular person or group. The UH-057 uses the standard 5/6 tone CCIR international Selcall system, and unlike many competing models, the Selcall tones, tone periods, and lead-in delays can be easily programmed from the front panel. There's no need for technical installation or set-up, so you'll save time and money.

The UH-057 features tone or Group calling, tone squelch scanning for locating Selcall activity on more than one channel, an auto Acknowledge System so you know your page got through, and a Call Alarm so you know someone is calling you. A Selcall ID memory is also provided to store your receive and transmit ID sequences. Each transceiver is supplied with a long-life 700mA/h NiCad pack, belt clip, AC charger, and flexible antenna as standard.

BONUS! - Purchase a **UH-056** or **UH-057** before 25th December 1994, and you'll receive a bonus speaker/microphone (while stocks last), valued at **$69.95.**
Hurry, limited stocks available

UH-056
Cat D-1756
$499

UH-057
Cat D-1757
$599

Uniden 220XLT Scanner

A great addition to the Uniden range, the Twin Turbo 220XLT hand-held scanner provides 10 band VHF/UHF coverage including airband, 200 memories, super-fast scan and search features (scan up to 100 channels/sec, search at 100 or 300 steps/sec), and pre-programmed channel steps to suit Australian conditions. You also get Data Skip and Lock Out for faster scanning, direct keypad channel access, NiCad battery pack and AC charger, detailed instructions, and a 2-year warranty.

Cat D-2755

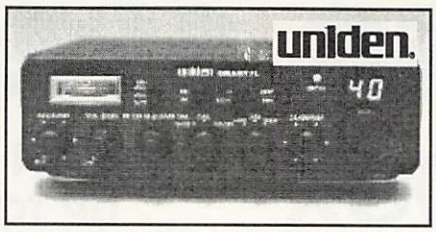
$469

2 year warranty

Frequency Ranges	Step size, kHz
66.0 to 87.995MHz	5.0
108.0 to 136.995MHz	12.5
137.0 to 173.995MHz	5.0
406.0 to 519.995MHz	12.5
806.0 to 824.00MHz	12.5
824.010 to 848.970MHz	30.0
848.975 to 869.035MHz	12.5
869.040 to 893.970MHz	30.0
893.975 to 956.000MHz	12.5

Sensitivity:

FM (nom. 12dB SINAD)	
66-88MHz	0.3uV
137-174MHz	0.4uV
406-520MHz	0.5uV
806-956MHz	0.8uV
AM (nom. 12dB S/N)	
108-137MHz	0.5uV



Uniden Grant XL AM/SSB CB

The successor to the popular Grant includes an inbuilt SWR meter plus a restyled black front panel. The Grant XL retains its predecessor's excellent audio quality and adjacent channel rejection, solidly built chassis, and smoothly operating squelch circuit, along with heaps of audio output.

Cat D-1482

$299

2500 XLT 400-Channel Scanning Receiver

State-of-the-art hand-held scanner from Uniden With super-wide 12 band frequency coverage (25-549.95 and 760-1300MHz), 400 memories, and advanced 100 channel per second Turbo Scan for faster frequency location. Includes priority channels and memory Auto Sorting for easier operation, plus memory Auto Store facility which is useful when searching for new active frequencies. Also features channel steps to suit most Australian conditions (inc 800MHz), plus 4 user-selectable steps for greater flexibility. Complete with NiCad batteries, AC adaptor/charger, carry case and detailed instructions.

Cat D-2725

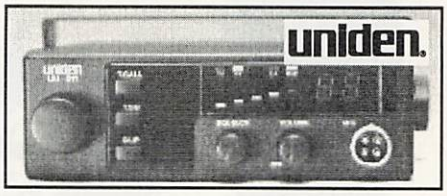
$599

Uniden AX144 AM/SSB CB

A favourite with avid CBers, the AX114 provides an analogue signal strength and RF output meter, as well as large well-placed controls which make using it as easy as can be. It covers all 40 channels on AM, LSB and USB and offers direct access to emergency channel 9. Also features Volume, Squelch, RF Gain and Clarifier controls, PA facility (for use with optional speaker) and Dimmer switch for easy-to-read displays both day & night. Complete with mic, mounting hardware and instruction manual.

Cat D-1130

$269



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Cat D-1766

$299

2 year warranty

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JVFAX VERSION 7 NOW AVAILABLE ON BULLETIN BOARDS

Regular readers of this magazine will be familiar with the German-made JVFAX software, a FAX/SSTV program for IBM PCs and compatibles written by Eberhard Backeshoff.

In brief, JVFAX is a multi-purpose program for the reception of both weather chart and photo-style facsimile transmissions.

For properly licensed radio amateurs, there is an additional transmit option for FAX and a SSTV transmit/receive facility. Fax reception can also be performed in fully-automated fashion, supporting time schedules.

The automatic creation of weather movies is likewise supported when receiving geo-stationary satellites.

Depending on the hardware interface, an intensity resolution up to 256 grey shades can be gained.

Spatial resolution depends on the index of co-operation being selected and can be up to 2400 dots per line. In conjunction with an adequate interface, a so-called Automatic Tuning Control (ATC) can be enabled when receiving FM-FAX, which greatly facilitates the tuning process.

This ATC also compensates for frequency drift within wide ranges. Naturally, the program can be configured for a wide range of ports and interfaces.

JVFAX runs on any IBM PC or 100 per cent true compatible and under DOS versions 3 or higher.

And you'll need at least a VGA graphics card. JVFAX supports SVGA cards in 16 or 256 color mode with different resolutions. Drivers for some 8/9 or 24-pin printers are included, and there's a driver for the HP-Laserjet. On slower 286 machines, however, the program will show a distinctly degraded performance.

Optimum performance is achieved with at least a 386 equipped with a SVGA-256 color card and at least 4 MB of RAM. Please remember that JVFAX will not run in a multitasking environment such as Windows or OS/2.

Pictures can be viewed, stored or printed during reception. Stored pictured can then be viewed, zoomed, printed or re-transmitted.

For the storage of the pictures the commonly-used GIF file format is used. Because of this, many shareware tools can be employed for picture post-processing, conversion to other graphics formats, etc.

If the program is run in SVGA 256 color mode then weather pictures can also be viewed in false colors.

Automatic phasing to normal FAX transmissions is possible with normal as well as with inverted phasing signals.

For the coverage of the different types of FAX transmissions (weather charts, weather pictures, press, etc), up to 20 modes can be defined within the program. These modes will store defaults for IOC, LPM, APT tones, number of grey shades, and so forth.

The program's time consumption to perform the necessary calculations for FAX reception grows proportionally with the 'resolution*LPM' setting.

For users of slower PCs it might be necessary to put a limit on the maximum dot clock or 'interrupt frequency' to get the program to run properly. With such a limit, pictures received with higher drum speeds and high IOCs will be processed with reduced resolution.

To operate JVFAX you will of course need some kind of hardware interface between your radio receiver and computer.

This converts the analogue audio signal that is provided by your receiver into a digital form that is readable by a computer. Schematics for a sample 256 grey-level AM/FM demodulator are included with the software package.

Other interfaces or interface kits are available commercially; JVFAX includes, however, only a listing of German suppliers.

For transmitting purposes you can choose between a parallel or serial output or an audio signal output using the PC's built in speaker or the TxD pin of a serial port.

The speaker signal as well as the serial TxD audio output can directly drive the transmitter after having passed some low-pass filter and voltage divider stages.

Now, author Backeshoff has released a brand spanking new version 7 of JVFAX worldwide (available on BBSs in compressed form as JVFAX70.ZIP or similar). So what's changed? Lots, actually.

Some command keys have been modified to make JVFAX more user friendly; the zoom function is improved for easier zooming; sound effects in date-driven reception are now disabled; in the file selection menus, the cursor will skip to the next file after the deletion of another file; movie files can now be created from files with less than 16 grey levels (as, for instance, in weather charts); and HIRES movies will run properly on VESA graphics cards.

Further, a VESA 1.2 display driver is available for 32k and 64k colours. And you can store and load color pictures as 24-bit uncompressed TIFs.

This makes possible color FAX or SSTV in true color quality. JVFAX7 allows direct loading of compressed JPG (JFIF) picture files on 386 or better computers (which will help to save lots of disk space).

Direct switching between FAX and SSTV without having to return to the main menu is now possible, as is the 'quick-tx fast-transmit' option from FAX or SSTV reception with picture selection from a 'thumbnail catalogue'.

There's also a new replay function for SSTV, a test tone audio generator for frequently-used tones, and a dandy spectrum display for SSTV. JVFAX is a highly evolved, sophisticated package and deserves your close consideration if you're into any of the above-mentioned radio activities.

JVFAX is freeware; the author requests no payment, but asks only that regular users of his program contact him with feedback about possible bugs and necessary improvements.

Why not download it yourself, from your local neighborhood BBS, and check it out?

This and other radio type software is available from numerous Australian BBSs - check out Patrick McDonald's "Online" column in this issue for the names of some of them

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Lots and lots of...

FREEBIES AVAILABLE FROM RADIO NETHERLANDS

For over 35 years, Radio Netherlands has offered printed data sheets to assist the international radio listener. A few years ago they started on a major program to upgrade all the publications to make them more comprehensive and improve their layout. This process has now been completed. They do this because they know that impartial information about shortwave international broadcasting is very hard to find in most parts of the world. Indeed, some stations even charge you money for their receiver information!

There are dozens of stations with English language programs. As a public service broadcaster and not a government mouthpiece, Radio Netherlands is one of the few independent voices on the airwaves. Since English is a second language for them, they concentrate their efforts on feature programs and the background to important news and current affairs.

The approach is summed up in one of the on-air slogans: "Some stations talk to the world, Radio Netherlands talks to *you*". They see their free information service as one method of meeting that promise.

With the changes in technology and their English language programming, shortwave listeners' requests have altered too.

The main emphasis now is a demand for impartial consumer information in various areas, and thus the pamphlets listed below attempt to cover as wide a field as possible. Listener feedback is always appreciated.

They're only human and with around 70,000 letters reaching the English section each year, they have to streamline the operation to keep mistakes to a minimum.

They want to make sure that every letter is read, and that specific requests and comments reach the right people. Because there are so many changes in a short period of time, you can help them by noting the following:

1. This catalogue replaces all previous editions. Items not listed in this edition, but previously published, are no longer available.

They don't have the office space to store a large archive of old material that is only asked for by a very small percentage of their audience.

New publications are mentioned on the air first, before being listed in any future edition of this **Listeners' Services Catalogue**.

2. Their secretarial staff is non-technical and primarily looks for constructive comments and suggestions on their programs. The suggestions are passed on to the presenter / producer concerned. Such letters are given priority over other mail. Several programs, such as **Media Network**, **Research File**, **Happy Station** and **Sounds Interesting** regularly incorporate specific listener questions into their programs.

You don't get much for FREE these days, and precious little for $10, however, Radio Netherlands has a wide range of books and services available which provide a valuable insight to shortwave listening. With HF DXing is in the doldrums, this is a great opportunity to add to your communication hobby without spending a mint...

Sorry, but they cannot give you advanced notice through the post when this will be. If you have written, then listen out!

3. Simple requests for existing information pamphlets are usually processed within a few days of receipt. Remember to allow at least 30 days each way for a reply to reach you.

They use the SAL (Surface Air Lifted) service to some countries to save on postage costs. This takes slightly longer than normal airmail.

They are always interested in reports of their material arriving in a damaged condition. Specific details help the station to complain to the authorities concerned.

4. Reception reports are also of value to them, especially when comparisons are made of frequencies running at the same time during a particular broadcast and/or reports are sent on frequencies that have recently been changed. If you are able to identify interfering stations, this helps us considerably.

For further details on reception reports refer to their leaflet entitled "**Writing useful reception reports**". Reception reports sent to us on audio cassette are *not* encouraged, because of the extra time needed to process. They *cannot* return the cassettes.

5. Radio Netherlands' English Department does *not* run a listeners club, nor are they able to offer a pen pal service.

This would create a heavy secretarial burden, and is not directly connected with their radio program-making activities. They simply regard everyone who writes to us as part of the Radio Netherlands family.

6. If you ask a technical question in your letter that is not covered by one of the pamphlets in this catalogue, then this is passed on to the producer of the Media Network program, **Jonathan Marks**.

He uses the letters as a basis for the features heard over the air. Specific technical questions connected with inter-

....☞

national broadcasting and/or points raised in Media Network are answered by mail.

Jonathan handles the post as fast as possible, but usually tackles the pile in the second week of each month. Please note that he is unable to enter into correspondence concerned with non-broadcast radio matters (eg TV DXing, utility listening) etc.

The points above should explain how their system works. The pamphlets listed below are all sent **free of charge** upon request.

Please note that they must have a street address for you... they cannot send electronic versions as yet via Internet.

However, in order to work within their printing budget, they cannot accept requests for more than five different pamphlets per letter sent in.

Large multiple requests (eg 1200 Booklists, 200 stickers, etc) have to be disregarded.

Please state clearly which pamphlets you are interested in by asking for them by the names listed on the following pages.

Remember that they have a full-color program schedule called **On Target**. This is issued twice a year in March and September, and gives you far more background to their programs than is possible with the older multi-lingual schedule.

If you want to register for this, please fill in the mailing list form at the end of this article in block letters and return it to us.

CURRENT CATALOGUE OF PUBLICATIONS

1. **Receiver Shopping List**, Edition 14. Last revised in December 1993, it is the most comprehensive ever.

This 75-page publication is the only free impartial consumer guide to choosing a short-wave receiver on the world market.

It is written in non-technical language and puts receivers into their categories.

a) Travel Portables
b) Table Top Receivers
c) Semi-professional monitoring sets
d) SW in the car.

Sets are listed in price order, including a brief description of facilities offered, and address of manufacturer.

A current survey is given, together with details of recently discontinued sets. 14 pages of addresses for sources of circuit diagrams, vintage radio, and reliable radio dealers.

Current price indications are given for The Netherlands, UK, Germany, USA, New Zealand, Canada, South Africa and Australia, where known.

2. **Booklist**, Edition 14 is now available. Revised in November 1993, this 50-page booklet contains over 200 useful publications, periodicals, and tape recordings connected with the various aspects of international shortwave broadcasting.

Also included are the various "listening guides" which tell you which shortwave stations are on which part of the dial and at what time.

The title, a brief review, price (where known) and retail outlets are noted.

3. **INFODUTCH**, Edition 4. April 1994. This publication has been completely re-written by Tom Sundstrom and was produced in response to the growing demand from their audience for details of home computer software somehow connected with international radio.

INFODUTCH stands for **INF**ormation **O**f **D**irect **U**se **T**o **C**omputer **H**obbyists. This booklet lists various software sources for a variety of machines. including the IBM (compatible) PC/AT and Apple Macintosh.

If you plan to use a computer for the reception of morse or radio teletype (RTTY) signals, this publication will help you.

Details of how to join computer information systems such as INTERNET and FIDONET are included.

4. **Antenna Advice 1.0**: At Radio Netherlands, they get several thousand questions a year about antennas.

This new brochure was issued in June 1994 to explode some of the myths about antennas and offer some practical advice. If you look at books about this subject, they quite often have a huge antenna on the front cover.

This leads to the general impression that a large antenna will pick up a stronger signal and therefore give better reception of the chosen signal.

In this brochure they show that the location and orientation of the antenna is much more important than the size.

The claims that many manufacturers put in their brochures are only half the story.

They examine the factors that influence shortwave reception, discuss passive and active antennas, look at some antenna accessories and review some antenna safety tips.

Two appendices are included: a bibliography and a list of names and addresses of publishers, vendors and manufacturers.

This popular 22-page booklet replaces the older **Give Your Antenna Some Air**.

5. **Writing Useful Reception Reports**, Edition 3. With the increasing number of shortwave listeners and DXers sending in reception reports to international broadcasting stations, it is wise to make your report stand out from the rest. This is simple, if you follow the '90s approach outlined in the pamphlet. This 14-page booklet gives you a number of useful tips. Please note, though, that this covers *international* broadcasters only. If you are interested in reporting to small local stations in Africa, Latin America, and Indonesia you will need to use an entirely different technique.

For advice in this field see their separate sheets.

6. **Latin American DXing**, Edition 4, issued December 1991. This fact sheet was originally compiled in response to listeners requests after a series of features run in Media Network a few years back.

Now it has been revised and updated. It includes advice on how to write a reception report to a station in that part of the world, simple letters in Spanish and Portuguese, plus some useful tips.

7. **Long Distance Medium Wave Listening**: An introduction to medium wave (broadcast-band) listening. Issued in April 1994, this pamphlet has been compiled by Steve Whitt.

The pamphlet deals with propagation in this part of the electromagnetic spectrum, the type of stations you can hear and also contains addresses of organisations specialising in this field, so you can take the interest further.

This is a topical brochure bearing in mind the current low sunspot number.

8. **This is Radio Netherlands**. Because of re-organisation at Radio Netherlands the color brochure issued in 1991 has now been withdrawn.

A new version is in preparation and should be issued by January 1995.

Listen for announcements.

9. **International Radio Listening** Edition 2: For many people who are new to this kind of listening, this six-page leaflet will undoubtedly be of interest. It defines the term DX, offers hints on how to get started, and whom to contact for further information. The BOOKLIST will also be of assistance in this case.

10. **Bonaire Relay Station**: a color brochure about Radio Netherlands' Caribbean relay facility in The Netherlands Antilles. This station is now fed by a digital link from their studios in

Hilversum.

11. **Madagascar Relay Station**: an information sheet about Radio Netherlands' relay facility on the island of Madagascar, and how signals are fed from Hilversum by satellite.

12. **The Solar Guide** Edition 2. Dave Rosenthal compiled this excellent free guide to understanding solar forecasts. These are given hourly on the time-signal station WWV, and weekly in their communications program Media Network.

This 10-page publication was issued in December 1991.

13. **Beacon Fact Sheet**. There are several beacons on shortwave run by radio amateurs.

These allow you to check propagation paths between your listening post and several other destinations around the world. Dave Rosenthal has compiled this free survey.

14. **Antennas for Reducing Skywave Interference**: This 10-page booklet describes a simple and compact means for converting standard book-size battery-powered shortwave receivers to directional reception.

Such directivity can be used to reduce interference when the desired and the interfering signals are coming from different directions.

The arrangement functions indoors as well as out, although better outdoors. Construction is straightforward and can be done with commonly available mechanical components.

No modifications to the radio are required for installation.

There is some loss in sensitivity, but the radio's normal tuning adjustments are unaffected.

Remember that is impossible to predict exact results, but then that is half the fun of antenna experimentation.

Receiver reviews

In addition to the information listed in the **Receiver Shopping List**, it has a limited number of reviews covering popular shortwave communications receivers.

In 1980, Radio Netherlands was the first shortwave broadcaster to start independent consumer advice reviews of equipment.

Since they are a non-commercial, non-profit making foundation, they are able to examine short-wave equipment from a neutral stand-point.

Reviews are first broadcast on air, in the weekly communications magazine program Media Network.

Depending on listener demand, some of these reviews are later released in printed form. Some of the information is also supplied to the editors of the Amsterdam-based World Radio TV Handbook.

Please note that only the reviews listed below are available.

Each review contains all the available information they have on that particular receiver.

They cannot enter into further correspondence, supply circuit diagrams, or suggest modifications on these or other shortwave receivers.

Receiver reviews are available on the following: (note that **D** = Discontinued. Set is no longer being manufactured, but may be found in shops).

DAK MR-101 (D);
Drake R8, Drake SW8;
Grundig Yacht Boy 206, Grundig Yacht Boy 400, Grundig Satellit 700, Grundig Satellit 650(D);
Icom IC-R72, Icom IC-R100, Icom IC-R9000;
Japan Radio Company (JRC) NRD-525(D), Japan Radio Company NRD-535;
Kenwood R-5000, Kenwood RZ-1(D);
Lothey HF-150, Lothey HF-225;
National Panasonic RFB-45;
Philips D 2935 (D), Philips D 2999 (D), Philips AE-3805, Philips DC-777 (SW car radio) (D);
Sangean ATS-803A, Sangean ATS-808, Sangean ATS-818;
Sony ICF-2001D/ICF-2010 (D), Sony SW-20, Sony ICF-SW100S/E, Sony CRF-V21, Sony ICF-SW55, Sony ICF-SW77, Sony ICF-7600G, Sony ICF-SW-55, Sony ICF-SW77, Sony ICF-7600G;
Yaesu FRG-8800, Yaesu FRG-100;
Accessory Test: RF Systems Magnetic Longwire Balun

Sounds Interesting...

Their listener contact program with Robert Chesal has compiled a brochure entitled "**A brief Lowdown on the Lowlands**".

Last revised in 1992, this 10-page pamphlet contains answers to the 40 most common questions to the Sounds Interesting program. Radio Netherlands is not a government station, and therefore does not distribute tourist literature. They do have a brochure entitled **Holland Info Sources** which gives the address of the Netherlands Tourist Offices outside the country.

MAILING LIST

Cut out and return this form to "Mailing List", English Department, Radio Netherlands, P.O. Box 222, 1200 JG Hilversum, The Netherlands.

I wish to receive the next issue of the free Radio Netherlands English newsletter "On Target".
Please add my name accordingly.

NEW ADDRESS TO BE ADDED

TITLE: Mr/Ms/Miss/Mrs/Dr/ or (please insert)_____
FIRST NAME _____
FIRST NAME _____
FAMILY NAME_____
STREET (OR P.O. BOX)_____
CITY_____
STATE OR PROVINCE_____
ZIP OR POSTAL CODE _____
COUNTRY_____

Have you recently moved, or is the address you just filled in different from your current address label? Help them to remove the outdated information from their files.

OLD ADDRESS TO BE DELETED
STREET (OR P.O. BOX)_____
CITY_____
STATE OR PROVINCE_____
ZIP OR POSTAL CODE _____
COUNTRY_____

DX Logbook

Welcome back to the SW scene. For those who are new to the column let me explain what goes on here. This corner of the mag concentrates on SW broadcasting. Occasionally I'll sneak in news about MW stations and bits and pieces from other related fields, but mainly we concentrate on SW. All frequencies are in kHz and all times are in UTC, which is the same as GMT. This month's column has an Asian influence with news from stations in the Asian region, topped up with broadcast news from around the globe. Now let's get going...

Thailand

Thailand has made the front pages of the DX press around the world lately with the start of the new VOA relay station. As part of the agreement struck with the Thai Government, **Radio Thailand** will be using the new transmitters at Udorn for its external service. The new site includes seven 500 kW transmitters and 25 curtain array antennas, and should give DXers an improved chance to hear Radio Thailand.

According to VOA's Dan Ferguson, Radio Thailand began using the new VOA transmitters on August 11, with the following sked:

0000 to 0030 in English on 9690 to South Africa
0030 to 0100 in English on 15370 to East North America
0100 to 0200 in Thai on 15370 to East North America
0300 to 0330 in English on 15370 to West North America
0330 to 0430 in Thai on 15370 to West North America
1100 to 1115 in Vietnamese on 7245 to South East Asia
1115 to 1130 in Khmer on 7245 to South East Asia
1130 to 1145 in Lao on 6040 to South East Asia
1145 to 1200 in Burmese on 6040 to Burma
1200 to 1215 in Malaysian on 11805 to Malaysia
1215 to 1230 in Indonesian on 11805 to Indonesia
1300 to 1315 in Japanese on 11845 to Japan
1315 to 1330 in Mandarin on 11845 to China
1330 to 1400 in Thai to Taiwan and Japan
1800 to 1900 in Thai on 9690 to Saudi Arabia
1900 to 2000 in English on 9700 to Scandinavia
2000 to 2015 in German on 9700 to Germany
2015 to 2030 in French to France on 9700
2030 to 2045 in English to Britain and, finally
2045 to 2115 in Thai on 9700 to Central and East Europe.

Patrick Macdonald has reported hearing Thailand at 0030 to 0100 on 15,370 kHz at fair to poor levels with world and Thai news, sports and weather forecast, so now's your chance to add Thailand to your list of QSLd countries.

...and VOA's sked is...

This is the VOA sked from the same site, sorted in order of ascending frequency. All times are shown, with destination:

6020 from 1400 to 1445 in Tibetan to Tibet
6045 from 2100 to 2300 in Chinese to China
6185 from 2330 to 0000 in Burmese to East Asia
7140 from 2130 to 2200 in Korean to Korea
7205 from 1800 to 1900 in Amharic to East Africa
7215 from 1400 to 1800 in English to South Asia
7225 from 0130 to 0230 in Bangla to Afghanistan
7225 from 2200 to 2330 in Indonesian to Indonesia
7235 from 1300 to 1400 in Korean to Korea
7235 from 1400 to 1445 in Tibetan to Tibet
7235 from 1430 to 1515 in Pashto, 1515 to 1600 in Dari, all to Afghanistan
7235 from 1600 to 1700 in Hindi to South Asia
7255 from 1600 to 1700 in Bangla to South Asia and 1130 to 1230 in Indonesian to Indonesia; 0000 to 0045 in Tibetan to Tibet
7290 from 1630 to 1730 in Swahili to East Africa; 1730 to 1830 in Portuguese to East Africa
9510 from 0000 to 0045 in Tibetan to Tibet; 1330 to 1430 in Urdu to South Asia
9535 from 0130 to 0215 in Pashto to Afghanistan; 0215 to 0300 in Dari to Afghanistan; 2200 to 2330 in Indonesian to Indonesia
9550 from 1130 to 1230 in Burmese to South East Asia
9555 from 2100 to 0000 in Chinese to China
9585 from 1400 to 1600 in Chinese to China
9590 from 0100 to 0130 in Urdu to South Asia and 0130 to 0200 in Urdu to South Asia
9635 from 0100 to 0300 in English to South Asia
9640 from 1800 to 1900 in Amharic to East Africa
9645 from 1100 to 1400 in English to Oceania and the Pacific
9685 from 1130 to 1230 to Indonesian to Indonesia
9705 from 2200 to 0000 in English to Indonesia
11,725 from 0100 to 0300 in English to South East Asia
11,785 from 1100 to 1400 in Chinese to China
11,805 from 1230 to 1400 in English to South East Asia
11,870 from 0000 to 0100 in Chinese to China
11,895 from 0000 to 0100 in Hindi to South Asia
11,920 from 1600 to 2000 in English to Africa
15,265 from 0800 to 1000 in Russian to Russia
15,430 from 0100 to 0130 and 2300 to 0100 in Chinese to China
15,445 from 0800 to 1000 in Russian to Russia

More News From VOA

The future of VOA's stateside relay station at Bethany looks bleak. According to a report appearing on Internet, VOA management is seriously looking at closing Bethany and maybe part of Greenville. The consolidation report was presented to President Clinton at the end of August and now needs to be voted on by congress before happening. This was expected during September.

Even though satellite broadcasting is the buzz-word among SW broadcasters, there are still many people who can't afford satellite dishes and still get their news via shortwave. So here's your last warning, get your QSL for Bethany before it's too late.

Radio Marti continues broadcasts to Cuba

With the increasing tension between the US and Cuba **Radio Marti** continues to play an important role in the propaganda war against Cuba. Dan Ferguson has provided the latest Radio Marti sked, which uses the facilities of the VOA. All broadcasts are in Spanish:

0300 to 0600 on 6055 and 9525 (Tuesday to Sunday)
0600 to 1200 on 6030 (Tuesdays to Sunday)
1200 to 1400 on 9600 and 11,815
1400 to 2300 on 11,930
2300 to 0200 on 9525 and 11,930
0200 to 0300 on 6055 and 9525.

By Rob Williams

Israel Still Making News

With Israel making strides towards Middle East peace, the news from this part of the world can make interesting listening too. Andy Tannenbaum has provided the latest **Kol-Israel** sked via Internet effective until March 31, 1995. English output is as follows:

0500 to 0515 on 9435 and 7465 to West Europe and North America and on 17,545 to Asia, Australia and New Zealand;

1100 to 1130 on 17,575 and 15,640 to West Europe and North America. At the same time 15,650 is broadcast to Asia, Australia and New Zealand;

1400 to 1425 on 15,640 to West Europe and North America, and 15,650 to Asia, Australia and New Zealand. This transmission is only aired Sunday to Thursday.

2000-2030 on 7465, 9435 and 11,603 to West Europe and North America, 17,575 to Africa and South America, while 7405 goes to East Europe, Russia, Western North America and West Asia; and

2230 to 2300 on 7465 and 11,603 to West Europe and North America, 9435 and 15,640 to Africa and South America, and 7405 to East Europe, Russia, Western North America and West Asia.

Great listening from New Zealand

Adrian Sainsbury, the frequency manager for **Radio New Zealand International** has posted the latest sked for RNZI effective from October 1, 1994 to March 19, 1995:

1650 to 1849 Mon-Fri on 9655

1850 to 2050 on 11,735 on Mondays to Fridays. On Saturdays the transmission ends at 2005 and on Sundays at 1958.

2051 to 0716 on 15,115 Mondays to Thursdays.

2005 to 0542 on 15,115 Friday and Saturday, **1958 to 0600** Saturday and Sunday.

0717 to 1206 on 9700 Mondays to Friday, **0543 to 1206** on Saturdays and **0601 to 1206** on Sundays.

9655 kHz is occasionally used for sporting broadcasts between 1307 and 1649.

Tidbits

• **Radio Netherlands** reports that **Radio Korea** changed its name to **Radio Korea International** effective August 15.

• **Swiss Radio International** is now broadcasting via a 500 kW transmitter of **Radio France International** from French Guiana.

Normal SRI programming will be carried, with English at 2000 to 2030 on 9770 to Africa, 0100 on 13,635 and 0400 to 0500 on 11,620 to the Americas and, finally, 0900 on 11,640 to the Pacific.

It is also relaying other languages from the site. (Source: Radio Netherlands).

• **Australian Defence Forces Radio** is using a 40 kW Navy transmitter at Belconnen, ACT to broadcast to Aussie troops located overseas. A live broadcast goes out at 0430 to 0500 on 18,735 USB with repeats at 0930 to 1000 on 18,735 USB and 0000 to 0030 on 13,525 USB. (Source: Radio Netherlands)

• The **BBC** plans to build a new relay station in Thailand in the Nakhon Province in Central Thailand.

The $46.8 million (assumed US dollars) will use four 250 kW transmitters and be on the air in 1996.

The BBC has also announced that its relay station in Hong Kong will remain on air after Hong Kong reverts to Chinese hands in 1997. Thanks to Charles Hunter for this news item.

• **OZDX** reports the following sked for **Deutsche Welle** transmissions via **Channel Africa** from its transmitter site at Meyerton: 1800 to 2200 in German on 3995. 0400 to 0450 in English on 6015. 1500 to 1550 in English on 7185. 0900 to 0950 in English on 9565. 1000 to 1050 and 1400 to 1450 in English on 15,410. 1100 to 1150 on 17,800. 1200 to 1300 in French on 21,695 and 1300 to 1350 in Hausa on 21,695. Thanks to World of Radio and David Martin for that tip.

• **Radio Netherlands** reports that **Radio Sana'a** carries English programming from 1800 to 1900 and 0600 to 0700 on 9780 as well as a spur on 9069. David Martin from OZDX goes on to say that press reports have indicated that the Aden transmitters, which were carrying 5970 and 7190, were destroyed in the country's recent civil war, and on July 7 Aden fell to North Yemen, bringing this war-torn region back to one country status.

• Patrick McDonald reports hearing **Radio Mediterranean** in English on 9765 between 0630 to 0700 at fair to poor levels.

Give Oz Post the flick!

Effective from August 18, Australia Post raised the price of **International Reply Coupons** (IRCs) from $1.35 to $2.00 each. For those who aren't familiar with IRCs, they allow you to pay for the return postage of one standard airmail letter from any country which is a member of the International Postal Union.

Years ago, when I first started out in the hobby, IRCs were the accepted form of return postage to get QSL cards from stations which wanted return postage.

The majority of SW broadcasters would accept them, while DXers chasing the more exotic stations would use mint stamps of the country they were chasing.

These days IRCs are so expensive that if you send out lots of reception reports a month your postal bill will skyrocket. More and more DXers are buying mint stamps from stamp dealers or the alternate approach is to write to DXers who specialise is selling mint stamps to DXers.

With a bit of forward planning you can write away to buy some exotic stamps, DX the station and then write a reception report, including the stamps.

Other DXers have obtained US dollar notes (called 'green-stamps') and send them with their reception reports.

The US dollar has become the de facto international currency, widely recognised around the world, but this can cause more trouble than it's worth.

First off, receiving money in the mail can be a sort of insult to the station, and some staff see it as a bribe to get a QSL card, even though your intentions are honorable.

Others have an automatic hatred of the US and refuse the notes, and then there is the postal system's thirst for money of any denomination, which doesn't arrive at the other end.

Sending a reception report these days can be an expensive business so you need to ensure that when you do send a reception report that your chance of getting a reply is as high as possible.

For those mint stamps Ian Baxter, reporting on **Shortwave Possum**, suggests writing to G N Robertson, 7661 Roder Parkway, Ontario, New York 14519, USA

AUSTRALIAN ASSOCIATION OF CITIZEN and BAND RADIO OPERATORS Inc.

LICENSING CHANGES WELCOMED

Changes to the licensing conditions for users of the Citizens Band Radio Service (CBRS) covered elsewhere in this edition, provide CBers and the ACBRO Committee with some of the best news they could have expected.

Over the years, ACBRO has put a lot of time and effort into attracting attention to the inadequacies of the system as we've known it.

While we accepted restriction as the norm, the right of the citizens of Australia to communicate through the airwaves had been legislated to be acceptable.

Having lodged a comprehensive submission on changes to the licensing conditions to the Spectrum Management Agency (SMA) earlier this year, ACBRO indicated that it should be consulted on changes which might affect those members of the community represented by its members.

Full credit should be given to the SMA for consented to attend a meeting attended by ACBRO committee and invited members of recognised CB organisations not covered by the ACBRO umbrella.

The meeting, convened by ACBRO, was held at the Haven Motor Inn function room in Glenelg, SA, on July 23, with the SMA's Alan Jordan over from Canberra for the day. Mr Jordan explained possible changes to the licensing conditions governing the CBRS.

There was no objection from those in attendance when he indicated that the SMA would recommend that CB radio operators be covered by the 'class licence' system, obviating the need for payment of individual license fees.

He emphasised that such a measure would *not* mean the service had been deregulated, as all operators covered by the class license would still have to abide by the current regulations in force at the time, similar to the way in which CBers have been obliged to operate since the days of licensing began.

All of this may be seen as a favorable direction in which the new Spectrum Management Agency is heading since its formation in July last year.

After all, an ability to *communicate* should be its forte, and the evidence of this actually happening is pleasing to see, particularly when its communicating skills include that of listening!

Mr Jordan was seen to make a number of notes from comments made by some of the participants at this meeting.

FOUR WHEEL DRIVE OPERATORS

Since mention in the last issue of CB ACTION of a proposal by the Australian National Four Wheel Drive Council (ANFWDC) to establish a 'road channel' for outback use on the roads in the heart of this nation, no comment from readers has been received to voice any concern or objection.

And rightly so, it could be said, when a responsible organisation establishes a system which should provide further safety on the country's roads where much carnage occurs.

The ANFWDC held its bi-annual general meeting in Darwin over the weekend of September 10 and 11.

An item presented on the agenda by Steve Johnston, the national radio officer, moved to have that organisation affiliate with ACBRO.

Mr Johnston indicated that most four wheel drive operators used in some way or other, a CB radio for their communications when on the road, and that any effort made by ACBRO for CBers to have an improved lot, was beneficial to their members.

The list of ACBRO's affiliates (opposite) continues to grow. Occasionally there's a drop-out as a club becomes extinct, but invariably those places are taken by others.

At any given time, ACBRO couldn't actually tell you how many CBers it represents, because of the many changes to club memberships that occur from day to day.

Any numbers quoted by ACBRO at any time are thus an approximation, which invariably is to the nearest thousand.

However, the ACBRO committee was pleased to learn of the proposal to have

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ANFWDC affiliate with us, as it would swell our numbers by some 11,000, being the membership of that organisation.

ACBRO is well aware that for it to be effective in any lobby with the authorities, it must clearly have the numbers behind it, and it openly continues to solicit new members or affiliates.

And it is clear that no one could claim to deny their support for ACBRO on the basis of costs, as it has retained annual membership fees at $7 for many years.

It was not expected that cost would be a bar for the ANFWDC to affiliate with ACBRO, and it was assumed that the principles of extending benefits to their members would prevail in any such decision.

Following the meeting at Darwin, Mr Johnston advised that the ANFWDC would apply for affiliation with ACBRO and that it looked forward to continued liaison between both organisations.

NEW COMMITTEE ELECTED

Following the annual general meeting of members in August and the traditional re-election of committee, it was pleasing to have some younger faces appear to take up office.

Their inaugural meeting addressed a busy agenda as well as establishing matters of need.

They were naturally pleased with changes anticipated to radio regulations that benefited members and, for once, felt that the vast amount of voluntary effort given by their predecessors in achieving such goals was worthwhile.

Committee agreed that there were still matters of concern to the CB fraternity, and the 'channel 35' issue was taken from the back-burner and tabled for re- assessment.

Some years ago, when a petition was presented to the parliament to do with having channel 35 (27MHz) made into an official call channel, CBers generally were pushing for this reform.

Of course, at that stage the skip was in full swing, and establishing a contact was pandemonium whether on 16 or 35.

Under these circumstances, the nonconformists certainly do *not* help when they demand their right to occupy channel 35 for aimless chit-chat.

Of recent times, with more pressing issues (and in the absence of skip), channel 35 has not occupied a lot of discussion time at the ACBRO committee meetings, but now with some new blood around the table with time on their side, more should be heard on this issue.

ACBRO ASSOCIATED CLUBS

Below is a list of clubs and organisations affiliated with ACBRO Inc. If you have one of them in your area, please give them your support of membership. Full details can be obtained by contacting the group of your choice from below.

For membership or affiliation enquiries please contact:

ACBRO Inc., P.O. Box 170, Walkerville 5081, South Australia.

Cleveland Bay Radio Club	P.O. Box 1641, Aitkenvale,QLD 4814
SA Rotten Radio UHF Assoc.	P.O. Box 4, Dry Creek,SA 5094
LT Club Inc.	P.O. Box 626, Launceston,TAS 7250
Albany Communications Group	65 Hassell St. Elleker, WA 6330
Radio City Australia	26 Wootten St. Greenacres SA 5086
Pioneer Radio Association (SA)	P.O. Box 1017 Salisbury, SA 5108
Plantaganet Rep't Institute of WA	PMB 306, Cranbrook, WA 6321
Burnie Citizens Radio Club	P.O. Box 655, Burnie, TAS, 7320
Transworld CB Radio Club	90 Crozier Avenue, Daw Park SA 5041
Canning River Radio Club	53 Parkside Ave, Mt. Pleasant WA 6153
Overland Radio Club	P.O. Box 1010, Murray Bridge, SA 5253
Eureka CB Radio Club	P.O. Box 27, Reynella, SA 5161
Transworld Sidebanders (The X/Ray Club)	13 First Street, Port Pirie, SA 5540
Echo Romeo CB Assoc.	P.O. Box 302, Morphett Vale SA 5162
Rotten Radio Group Intnl	P.O. Box 4, Dry Creek SA 5094
Broken Hill UHF Repeater Club Inc.	P.O. Box 1023, Broken Hill NSW 2880
Gippsland Repeater Assoc. Inc.	P.O. Box 555, Maffra, VIC 3860
Murray Bridge Agric & Hort Society	P.O. Box 315, Murray Br., SA 5253
Samba Club	P.O. Box 16, Salisbury, SA 5108
Tweed Radio DX Group Intnl	P.O. Box 773, Murwillumbah, NSW 2484
The Pathfinder Radio Soc. Club	P.O. Box 24, Woodridge, QLD. 4114
Dirty Dozen Radio Group	P.O. Box 426, Morphett Vale, SA 5162
Hotel Zulu Radio Group Inc.	P.O. Box 66, Elizabeth, SA 5112
White Fox Radio club	P.O. Box 288, Salisbury, SA 5108
Mega Mouth International	P.O. Box 55, Mowbray, Launceston, TAS 7250
The Triple "R's" Group	451 Regency Road, Sefton Park, SA 5083
Tru Blue Radio Group	P.O. Box 379, Blackwater, QLD. 4717
Sugar Valley Radio Club	9 Martin Place, Edgeworth, NSW 2285
Blue O Radio Group	P.O. Box 53, Monaro Cresc, ACT 2603
Sydney Radio Group	P.O. Box 185, Gordon, NSW 2072
Ratbag CB Radio club	P.O. Box 227, Welland, SA 5007
Sun Centre CB Radio Club	P.O. Box 912, Swan Hill, VIC 3585
Port Adelaide Radio Club	P.O. Box 352, Pt. Adelaide, SA 5015
Cherokee Indian Aust. Group	P.O. Box 1679, Mildura, VIC 3500
Sth. West District CB Radio Club	P.O. Box 620, Warrnambool, VIC 3280
A.M.O.S. CB Radio Club Intnl	P.O. Box 351, Broken Hill, NSW 2880
Pioneer Radio Association Aust.	P.O. Box 1415, Mount Isa, QLD 4827
Naracoorte UHF Association	P.O. Box 465, Naracoorte, SA 5271
Gosford Radio Club	50 Pacific Highway, West Gosford, NSW 2250
Ultra-Lite Radio Club Inc.	P.O. Box 17, Strathpine, QLD 4500
Felix Radio Club	P.O. Box 78, Goodna, QLD 4300
Inlander CB Radio Club	P.O. Box 5712, Rockhampton, QLD 4702
Aust. Red-Heeler Soc. Radio Club	P.O. Box 8018, Wynnum North, QLD 4178
Central West CB Radio Club Inc.	P.O. Box 628, Orange, NSW 2800
Vic Red Heeler Radio & DX Group	P.O. Box 1802, Ballarat, VIC 3354.
Kilo Romeo Circle of Friends	P.O. Box 16, Cleveland, QLD 4163
Radio Hobart Group	P.O. Box 266, Glenorchy, TAS 7010.
Welsh Dragon Radio Club	P.O. Box 581, Belmont, VIC 3216
Oscar Romeo CB Club	P.O. Box 203, North Geelong, VIC 3215
Coal Miners Wonthaggi CB Club	P.O. Box 420, Wonthaggi, VIC 3995
East Coast Radio Club	P.O. Box 412, Bexley, NSW 2207
MBV 08 Repeater Assoc.	c/o Post Office, Charleston, SA 5244
Q'land Radio DX International Club	P.O. Box 586, Warwick, QLD 4370
Q'land Blue Heeler Soc. Radio Club	P.O. Box 1122, Castle Hill, NSW 2154
The 43 Australian Radio DX Club	P.O. Box 96, South Oakleigh, VIC 3167
Sugar Valley Radio Club	9 Martin Place, Edgeworth, NSW 2285
Ozzie Eagle DX Group	P.O. Box W110, Armidale, NSW 2350

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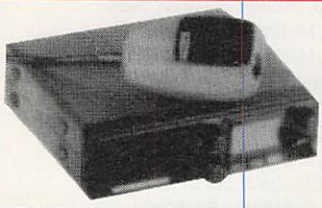

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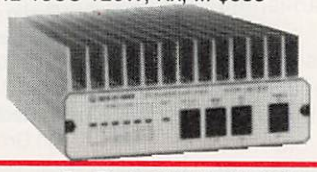

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THE INVISIBLE CONNECTION

Part one

By Ken Reynolds

Have you ever wondered how radio communications works? Not the electronics inside the radio, but what is it that actually makes the electrical connection between distant radio transceivers so that messages can be transferred from one location to another having no apparent connection?

In the early days of radio communications the phenomenon was known as 'wireless' and you don't have to look too hard today for the few remaining old-timers who could bend your ear for hours with stories of the way things used to be.

Since World War II electronic technology has forged ahead relentlessly uncovering the mysteries of radio and revealing all but a few of nature's carefully kept, radio energy secrets. And with it has gone the romance and intrigue of the world's spies pounding out secret Morse Code messages destined for the antipodes from within the bowels of innocent, olden dwellings of Continental France and Deutschland.

Radio is the catchword these days, and we take its benefits and pleasures so much for granted that few even question its real entity and how that remote connection actually takes place. In a world becoming consciously alert to the hazards of high level (and not so high level) radiation of one type or another, the similarities from gamma radiation to X-rays and ultraviolet 'sunburn' to your favorite TV program are infrequently pondered or compared.

The root term 'radiation' lends its name to your interest of CB radio, and in passing defines the essence of radio communications — the radiation of energy.

Radio is perhaps more precisely described as the discharge of electromagnetic energy in a precisely-controlled manner and having maximum field density in a predetermined direction.

It is this radiation that becomes the mysterious force that links radio stations together, be they near or far from each other. It's the invisible connection which coined the term 'wireless' in the beginning and 'radio' in the present.

A radio signal has two main components: an electric field and a magnetic field which are inextricably (I've *always* wanted to use that word!) linked and travelling at great velocity — about the speed of light, which is 300,000km/second through free space — away from the source which produced them.

The field strength of the radio signal at any given instant is directly related to the output power of the transmitter and the field's distance from the source of radiation.

The output power is usually measured in watts, with higher power signifying greater field strength. Signal strength is usually measured in terms of power density per square area, eg, watts per square metre, or fractions of either or both terms.

Because the travelling radiation wave front is electromagnetic in nature, as it contacts objects in its straight line path a small amount of energy will be imparted to the objects it strikes.

Making the transition from Wireless Communications to Radio Communications is the difference between mysteries of the past and the dawning of a brilliant technological era. Ken Reynolds takes us on a tour of the laws and limitations of radio broadcasting and reveals the link between power and distance, and isotropics and dipoles.

Good electrical insulating materials like glass, plastic, dry wood and the like with tightly-bound electrons in their molecular construction, will resist strongly the effect of contact with radio frequency energy, and these materials will remain electrically stable.

However, in materials known as conductors — like most metals, of which silver, copper, gold and aluminium are excellent examples — the passing field can 'excite' the loosely-bound electrons into activity, causing an electric current to flow within the conductor.

This is the same principle used to generate most types of electrical energy — relative motion between a magnetic field and a good electrical conductor like copper wire.

The 'induced' current in turn produces its own electromagnetic field around the conductor, which is opposite in polarity and direction of its current flow to the energy field which produced it, and thus attempts to restore nature's natural state of equilibrium.

You just can't escape the basic rule of physics that states for every action there will be an equal and opposite reaction.

The electrical conductor we are most interested in here is the length of copper wire connected to the antenna socket of our radio receiver and, even though our wire may be many kilometres distant from the transmitter, if only a tiny portion of the radiated field comes into contact with our antenna wire a tiny electrical current will be caused to flow in the wire.

We can well imagine that our antenna will come into contact with *thousands* of these electrical fields, *all* of which will produce respective currents to flow.

For the sake of simplicity we will assume that only one field exists in this explanation.

An Iso... what?

Many readers will have heard the term **isotropic**, especially in regard to antenna gain measurements, and dismissed it as some kind of high tech gobble-de-gook that is too hard to understand anyway.

In fact, the term 'isotropic' is nothing to fear.

The principle is really quite simple to understand and, once grasped, can offer a new perspective into antenna gain and what it really means to you, the operator.

....☞

THE INVISIBLE CONNECTION

(continued from previous page...)

The Concise Oxford Dictionary defines isotropic as "...*having the same physical properties in all directions*...".

So, it might be assumed that an isotropic antenna would be expected to look the same from all directions and radiate its field equally in all directions.

And, in antenna theory, this is indeed the case except for one important failing — for a variety of physical reasons, such an antenna exists only as a mathematical model.

Its importance to antenna performance measurements stems from its truly unique character; as a mathematical model it is the only true reference against which to measure the performance of real world antennas.

You may see an antenna specified as having a gain of 6dBi, or as having 6dBd gain. What is the difference between the two specifications? 6dBi refers the antenna performance to that of our theoretical isotropic antenna, while the latter term relates it to the performance of a dipole antenna.

As you can appreciate from our definition of an isotropic antenna, it is always a constant reference point, having the same physical properties in all directions. A dipole, on the other hand, is a manufactured antenna and as such is subject to variations and errors.

As an illustration, if 10 people each built their version of a dipole antenna we might just get 10 completely different results. Although the debate about dBi and dBd will rage for years it seems pretty clear cut to me.

A lot to learn from isotropics

An isotropic radiator might seem pretty boring at first, but on closer examination it makes the perfect tool from which to learn about radio wave radiation patterns and signal field strength intensities.

An isotropic antenna typically would be a point source of radiation emitting exactly the same intensity in all directions. **See Figures One and Two.**

For example, if we were to draw a given length radius in any direction from the source we would measure precisely the same signal strength at any point on the sphere described by those radii.

This is significant because, by using a simple formula to calculate the surface area of a sphere, we can determine exactly what the signal intensity is per square area given the radius (distance from the source) and the output power of the source.

Given a few more details about the receiver sensitivity and antenna characteristics, we can actually determine the maximum transmission distance for a signal path in outer space, or maybe the transmitter power level required for a satellite (downlink) to transmit a high quality TV picture to a domestic ground receiving station. While this is an oversimplification of the real calculations which require other factors to be considered, the principles remain the same.

The reason it is virtually impossible to produce a practical isotropic antenna is because such a radiator must have a feed point and therefore a feedline to convey the power to it.

Any foreign matter entering will distort the spherical radiation pattern and thus our perfect isotropic radiator is lost.

To help really wrap your mind around the principle we resort to stellar physics. Unlike human-produced radio frequency sources, a star like our sun (and millions of others in the universe) is a giant radio transmitter, radiating almost unimaginable quantities of energy in a super wide-band frequency range.

Most stars, as observed individually from earth, are almost perfect examples of point source radiators which, if viewed unobstructed from any direction, will 'shine' with equal brilliance in all directions. A star generates its own energy from within requiring no external power conveyance to interfere with its uniformity.

Before we depart the 'spherical' radiator it will serve us well to look at the law of inverse squares. It sounds boring again, but it is really quite simple and vitally important to the understanding of why radio signals diminish so quickly as the distance from the source increases.

A quick calculation proves that the surface area of the sphere with a radius of 1 metre is equal to:

Square area = $4 \times \text{pi } (\pi) \times r^2$

$= 4 \times 3.141592654 \times 1^2$

$= 12.56637061 \times 1$

$= 12.56637061$

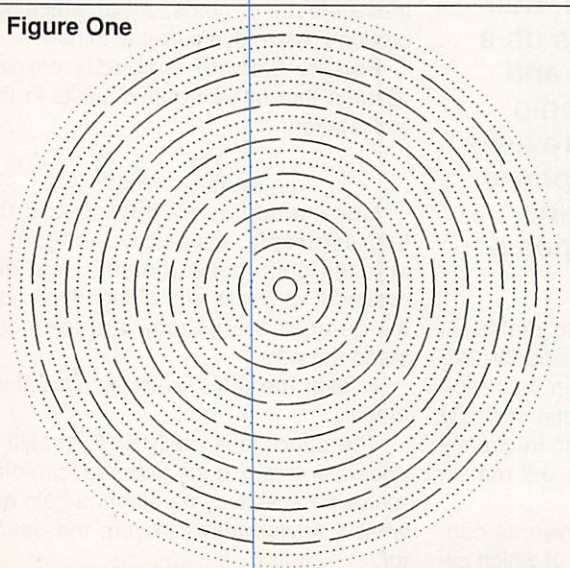
Or about 12.6 square metres.

Where:

pi (π) = 3.141592654

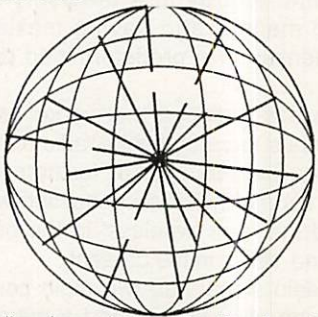
r = radius of sphere

Figure One



Waves radiate out from a central point just like ripples on the surface of a pond

Figure Two



A radius drawn in any direction from the centre of a sphere will have the same value at any point where it intersects the surface of the sphere - circumference.

Square area in square metres

So, if out transmitter output power was about 12.6 watts, we would have a field distribution density of about 1 watt per square metre.

Lets do the calculation again, substituting two metres in the equation — double our original distance. This time the square area of the sphere is about 50 square metres or four times the original value. This means our 12.6 watts of output power is now distributed equally over four times the square area which gives us a power density of one quarter of a watt.

Each time we double the distance of the receiver from the source the inverse square law will be invoked, causing a diminishing return of one quarter the previous value. So, a sphere of 4 metres radius will have a power distribution of about 0.0625 watts, and so on.

You may think the inverse square only applies to point source radiators like the theoretical isotropic reference antenna and does not relate to the real world of practical installations.

To find out for yourself how the law applies to high gain beam antennas for example, try out the following experiment:

You probably already know that visible light and radio waves are both electromagnetic radiation, just that they're operating on vastly different frequencies.

Get your hands on the family 'torch' (flashlight if you're Americanised) and measure a distance of 30cm away from a sheet of paper taped to the wall. Mark on the paper the width (diameter) of the light beam.

Next move back 30cm further along the same line from the wall and measure the new diameter of the light beam. Repeat it over different distances if you like and correlate the results. Did you discover any relationships? Remember, when you double the diameter of a circle you increase the square area of the circle by four times.

The reflector of your torch is acting like a high gain passive reflector antenna would for UHF CB, for example, by concentrating all the available energy into a dense beam of radiation, thus increasing the power density per square area.

We should mention an interesting point here, and we'll come back to it later. Many UHF CB enthusiasts and others will know that if you double the size of a conventional antenna system, a power gain of about 3dB is achieved, which amounts to doubling the effective radiated power (ERP).

So, does it come as any surprise to know that if you double the size of your circular parabolic reflector antenna that a power gain of 6dB can be reasonably expected if you did it right?

Now that we have some understanding of the basic constants in electromagnetic field radiation it is time to consider some of the more practical radiator types. Since antenna gain measurement is usually compared to the performance of our theoretical isotropic radiator, or a dipole antenna, it stands to reason that we take a look at the latter and its various forms, of which there are many.

The Australian Concise Oxford Dictionary inadequately describes a dipole as "an aerial consisting of a horizontal metal rod with a connecting wire at its center".

The literal translation really means an entity possessing two poles, as in two magnetic poles or electrically-charged poles. How one applies the magnetisation or charge to the entity is of little consequence so long as some driving force is maintained.

As far as radio antennas are concerned the usual most basic, and quite effective antenna, is one known as a Half-Wavelength Dipole which is 'fed' at its center point for the sake of convenience. Most readers will already know that the Half Wavelength measurement relates directly to frequency, and is simply a measure of one half of the distance travelled by one complete cycle of radio frequency energy.

Since radio waves and light waves in 'free space' travel a speed of 300,000,000 metres per second, to find one wavelength in metres at 27MHz, for example, we simply divide 300,000,000 by 27,000,000 which is about 11.1 metres or 36 feet in length. This is why 27MHz CB is known alternately as the eleven metre band. Divide this result by two to obtain a half wavelength. Simple!

Radio waves travelling through air and other materials have their speed modified to some extent and have their velocity slowed as a function of the density of the material in which they propagate.

For example, they travel faster in the 'thin' air of the upper atmosphere than in the 'thicker' air at sea level. Various other factors affect the final dimension of a radio wavelength, and to calculate the length accurately for a given antenna or application it is usually necessary to juggle some variables to get the correct result.

Now to the dipole itself. I mentioned earlier the convenience of using a half wave dipole as an effective antenna to radiate signals. If you have covered basic physics — and even if you haven't — nearly everyone knows about resonant frequencies of materials, and the fact that just about everything you can name has a resonance of some type.

While most imagine that the resonant frequency of an object relates to one full wavelength (whether it be sound waves or radio waves), in reality the shortest resonant dimension is one half wavelength.

Think of it this way: in the diagram an RF energy wave (a sine wave in our case) begins at point 'A' with zero electrical energy, and smoothly increases to its peak and then declines back to zero at 'B' where its direction reverses to complete its second half of the complete cycle ending at 'C'. **Refer Figure 3.**

Between points 'A' and 'B' or 'B' and

....☞

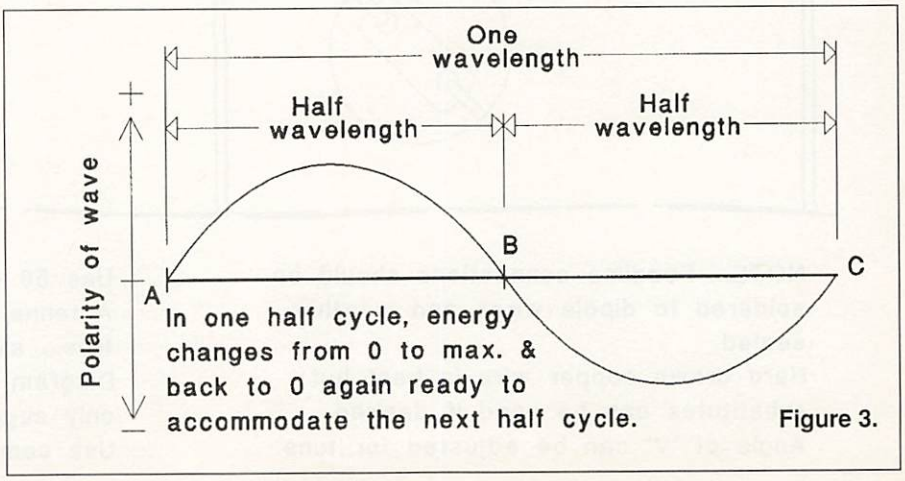


Figure 3.

THE INVISIBLE CONNECTION

(continued from previous page...)

'C' our energy has gone from zero to a maximum and back to zero again. The second half cycle is just a mirror image of the process.

The second benefit of a half wavelength resonant dipole antenna is its convenient impedance when fed at its physical center point.

The basic dipole shown in **Figure 4a** has a purely resistive feed impedance of about 70 ohms in this configuration. **Figure 4b** shows the dipole bent at 90 degrees with a feed impedance of 35 ohms, about half that of 4a.

So, somewhere in between these angles of 180 degrees and 90 degrees the feed impedance will range between the two values of 70 ohms and 35 ohms.

Most radio transmitters and receivers these days have an antenna impedance of 50 ohms, and we usually connect them to an antenna via a 50 ohms impedance coaxial cable. Therefore, to get an almost perfect match between our radio, transmission line and the dipole, it stands to reason that we can adjust the angle of the two dipole arms and come up with 50 ohms.

The configuration shown in **Figure 4c** is known as an Inverted 'V' antenna and its ability to transmit an effective radio signal is not in doubt.

Like most other dipoles, the inverted 'V' is a directional antenna whose main field of interest lies perpendicular to its average axis.

It has been used with great success

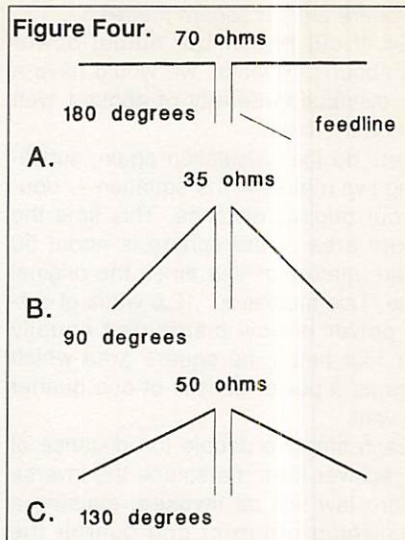
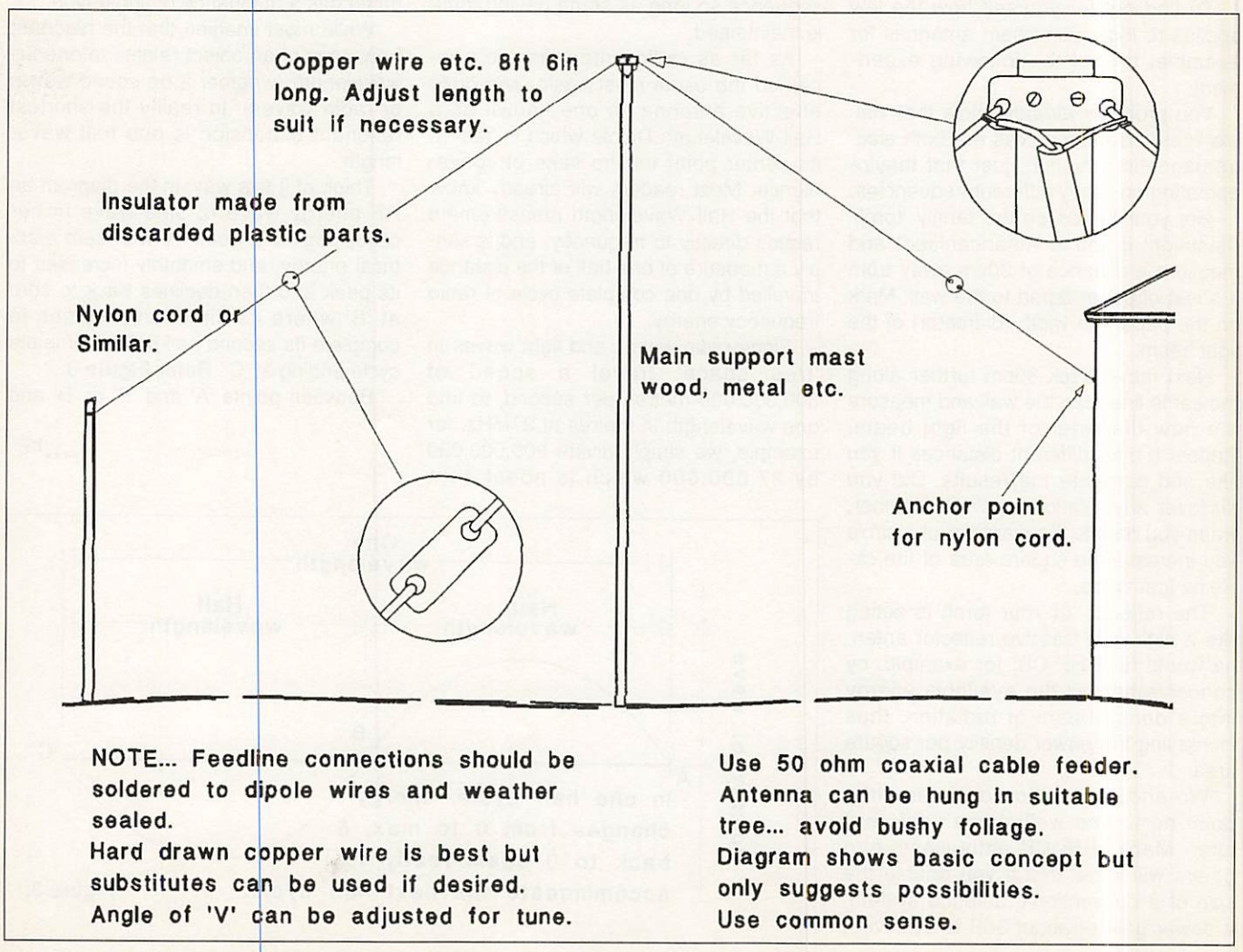
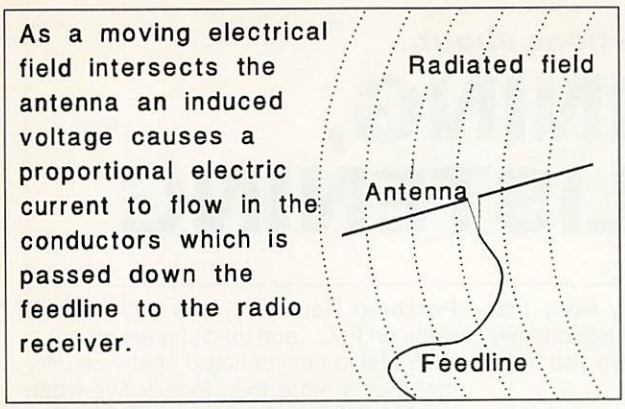


Figure 4. Centre fed dipoles and their respective approximate impedances. Note the angle of the arms has a direct relationship to the impedance.


Copper wire etc. 8ft 6in long. Adjust length to suit if necessary.
Insulator made from discarded plastic parts.
Nylon cord or Similar.
Main support mast wood, metal etc.
Anchor point for nylon cord.
NOTE... Feedline connections should be soldered to dipole wires and weather sealed.
Hard drawn copper wire is best but substitutes can be used if desired.
Angle of 'V' can be adjusted for tune.
Use 50 ohm coaxial cable feeder.
Antenna can be hung in suitable tree... avoid bushy foliage.
Diagram shows basic concept but only suggests possibilities.
Use common sense.


As a moving electrical field intersects the antenna an induced voltage causes a proportional electric current to flow in the conductors which is passed down the feedline to the radio receiver.
Radiated field
Antenna
Feedline

by generations of amateur radio operators and many reports indicate that it is a better performer than 180 degrees dipole configurations.

Building your own Inverted 'V' antenna is a simple and rewarding project that will give you an effective, base station, directional antenna with about 2 to 3 dB of gain over an isotropic, for minimum financial outlay.

You don't even need to buy commercial porcelain insulators and the like when you can salvage parts of disposable plastic containers or the like.

Figure 5 give most of the details you need to build your own Inverted 'V' antenna for 27MHz. Remember, the best field strength is radiated from the broadsides of the dipole so you should construct it to your best directional advantage. Depending on your location you might aim it Stateside or to some other DX location.

With a bit of imagination you can construct the antenna to be rotatable, thus favoring different directions as the need arises.

Because half wave dipoles don't work very well along the axis, you can use this feature to your advantage too. By carefully adjusting your main radiation angle (rotating the antenna) to improve the desired signal you may be able to reject annoying noise sources or other interfering stations. This simple antenna has lots of potential.

If you have the tools and the know-how, the antenna can be forged from metal tube and even made fully rotatable if desired.

There are no special requirements to building this antenna, other that you follow common sense. If you have an SWR meter you will be able to assure an accurate impedance match, however, if you use the dimensions shown in **Figure 5** the result should be quite satisfactory.

It may be best to use what is often called a 'flat' feedline, which means cutting your co-ax cable length to multiples of one half wavelength.

One half wavelength of RG-58 or RG-213 cable is about 12 feet. This figure is close enough unless you intend to use a very long feedline and then you might need to calculate the length a bit more accurately.

The type of wire you use for the dipole elements is not all that important. Again just use common sense.

I know a farmer who has been building all types of antennas for many years and he does all of his prototyping with fencing wire, and in many cases his successful designs don't even get to the copper wire stage! Not that I recommend fencing wire, of course, because it is frequently difficult to make a long term, low resistance electrical connection.

Good luck with the project and we will look at some more useful antennas next issue.

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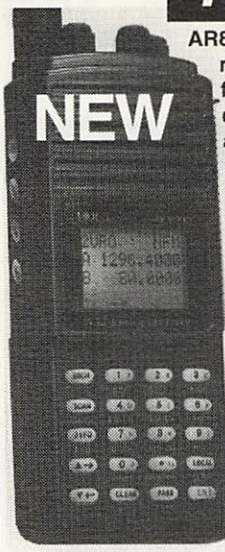

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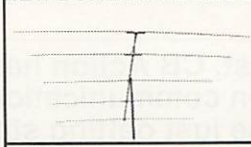

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Frequently Asked Questions about...

CB, SCANNING, SHORTWAVE LISTENING

• Some tips for communicating with others on CB...

The following is generally considered proper procedure (or *polite* procedure if you prefer) when using an HF (11 metres/27MHz) CB radio. It can also be considered a beginner's survival guide. This was compiled from common problems that have plagued beginners since using CB first became popular.

When two people are talking, essentially they temporarily 'own' the channel... not legally, but more by politeness. In the USA, FCC (Federal Communications Commission) regulations say that users *must* give other people opportunities to break in and use a channel if they're going to be on it for more than several minutes — however, it is not right for an outsider to 'take' the channel from them. While we don't have the same stipulation as a law here, courtesy dictates that we should follow the Yanks as a matter of common sense.

Take care not to 'step on' other units (ie transmitting at the same time as someone else), because that makes *both* transmissions unreadable. This usually means that you should adjust your squelch level just above the noise so that you can hear other units and then only begin to transmit when you can't hear anyone else — *never* deliberately key over someone else.

Nobody likes that and you will be told so — usually in forcible tones.

If you hear one unit break for another unit, give enough time for the unit to respond before you say anything yourself. Keep in mind that they may have to fumble for a microphone in a moving car or dodge furniture en route to a base station.

Remember, the calling unit has the channel — if you want to talk on a channel that is in use, it is very likely that your initial transmissions will accidentally 'walk over' someone else's so you must keep them short.

The word 'breaker' is generally accepted. Try to time it in a pause in the conversation — even when your 'break' has been recognised, keep your next transmission short.

For example, "Breaker one-seven for Godzilla" if you're on Channel 17 and looking for someone whose handle is Godzilla. If Godzilla doesn't answer in a reasonably short amount of time, it doesn't hurt to add "...thanks for the break" to the units who stopped their conversation for you.

If you break on an open (unused) channel, you don't have to be as brief... For example, "Break 17 for Godzilla — are you out there Godzilla?", however, the shorter form is also perfectly acceptable.

If someone speaking to you gets 'walked over' so that you can't understand the message, you basically have two options: you can tell the person you were listening to "10-9, you were stepped on", or you can find out what the breaker wants — "Go ahead breaker" — before returning to your original conversation (QSO).

• What are 'linear amplifiers' and can I use them with a CB?

In the USA, UK, Australia, Japan, France, Germany, Canada, New Zealand, and Russia it is *illegal* to use a linear amplifier on Citizen's Band radio. In the USA and Australia, the maximum amount of power that is rated for CB is four watts on AM and 12 watts PEP (peak envelope power) on sideband.

In Japan, the Citizen's Radio band is limited to 1/2 watt on AM and the Personal Radio Band is limited to 5 watts on FM... and the list goes on.

We have not yet heard of any country that allows more than four or five watts on AM/FM or 12 watts on SSB. For other countries, if there is a power limit on CB transmissions, any amplifier that boosts a radio's power beyond that point is obviously in violation.

Linear amplifiers allow a radio to transmit using much greater power than is legal. They may range from 30 watts to above 1000 watts.

The problem is that, in reality, you simply cannot communicate with anyone you can't hear. But you can easily interfere with people you can't hear if you use more than legal power.

So a good antenna is the best solution for getting better range out of your CB. The reaction to questions about linear amplifiers will vary with the country you are from.

In countries where they are illegal, you will probably find yourself severely flamed.

Besides, most black-market linears are low quality and will distort your signal and interfere with consumer electronics or other radio services. Stray signals from a linear outside of the CB frequencies can bring a swift response from whoever it interferes with.

It is far better to run a clean radio with a clean signal into a high-quality coaxial feedline and antenna tuned for low SWR.

Many radios are deliberately undertuned from the factory (to make sure that they are well within type-acceptance limits).

Take it down to a specialist radio shop and get it a 'full-legal max out' to four Watts AM, 12 Watts SSB at 100% modulation.

In the past, CB Action has run an irregular "Newcomers" page providing basic knowledge on communication hobbies such as HF CB, shortwave listening, scanning, etc. for those just getting started. However, we still receive a lot of mail asking about things not necessarily contained in that page. To provide better service for newcomers, CBA will now run a couple of pages each issue answering specific questions. For this issue, we have taken commonly asked questions from the Internet *Frequently Asked Questions* services (with the permission of the FAQ providers) and we will continue these, along with any other specific enquiries in our next issue.

• How can I reduce engine noise on my mobile CB?

If you have problems with engine noise in a mobile installation, there are several things you can do to reduce or eliminate the problem...

— Make sure you've completely installed your CB and the antenna is grounded properly.

— Check the amount of noise with and without the antenna connected. If the noise is greater when the antenna is connected, the source is probably the ignition system. If the noise remains unchanged after disconnecting the antenna, the source is probably in the CB's power supply. For ignition noise, there are several parts of the vehicle that can act like RF noise transmitters if not properly grounded.

— Check (and connect to ground on the chassis/frame, if necessary) the engine block, hood, muffler, and exhaust pipe.

— Ignition noise can be further reduced by installing 'magnetic suppression' spark plug cables. (These are significantly more expensive than normal spark plug cables, but well worth the expense.)

— For power supply noise, check if you have a capacitor attached to your ignition coil, alternator, and distributor. These can act as filters right at the source of the noise.

— Ensure that your antenna feedline and power lines are as far as possible from any of the noise sources mentioned above, especially the engine block. A shielded power cable can help as well. Make sure it is of sufficient gauge to handle your radio's power consumption and that the shielding has a good, strong connection to ground on the vehicle chassis or frame.

— Electronics stores such as Tandy and DSE sell cheap power filters for noise-reduction purposes. You get what you pay for, though — most comments are that they are not as effective as the other measures above. Of course, better performance can be obtained by using a more expensive radio equipped with better noise suppression circuits.

These measures, however, will improve the engine noise levels for nearly any mobile radio.

• What is shortwave radio?

From a purely technical point of view, shortwave radio refers to those frequencies between 3 and 30 MHz. Their main characteristic is their ability to 'propagate' for long distances, making possible such worldwide communications as international broadcasting and coordination of long-distance shipping.

The WRTV book is considered by most to be the best available in this area.
You can buy it from Daycom or DSE for around $35.

From a social point of view, shortwave radio is a way to find out what the rest of the world thinks is important. Many countries broadcast to the world in English, making it easy to find out what a given country's position is on those things it finds important. Shortwave radio can also provide a way to eavesdrop on the everyday workings of international politics and commerce.

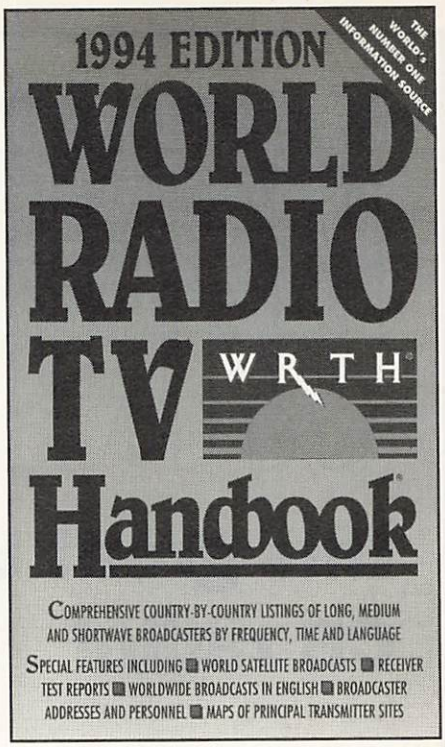
• Where can I find broadcasts by Radio Whatname?

The **World Radio TV Handbook** (WRTH) is the standard reference for this sort of information. The WRTH provides SWLs (shortwave listeners) and DXers (listeners specialising in distant (DX) and weak stations) worldwide with virtually everything they need on frequencies, schedules and addresses.

It comes out annually, in the early part of the year. The WRTH covers virtually every shortwave station in the world, and many of the medium wave (AM), FM, and television stations as well.

The body of the book is a listing of stations by country, with a cross-reference in the back by frequency. It's available from stores such as Daycom (in Melbourne) and Dick Smith Electronics stores around the nation, as well as reputable technical book shops in main cities. You can also contact WRTH through its publisher, Billboard. World Radio TV Handbook 1994 ISBN 0-8230-5925-1. The past several years have seen competition of a sort for the WRTH, in the form of **Passport to World Band Radio**. Passport's main section is a graph/table of what's on the air, by frequency. The beginning of the book is filled with articles of interest to the beginner. There is also a comprehensive review section of shortwave receivers currently available — one of the few places all this information can be found in one place. The book is more useful for identifying a station you've already tuned in than for searching out a particular transmission; the WRTH is useful at both, however, rendering the purchase of this book not essential.

It can still be worthwhile, though, especially for beginners who won't be put off by the 'gee whiz, look what we can listen to' tone of some of the articles. The book is unabashedly an advocate of making the hobby of 'World Band Radio' accessible to people who wouldn't have participated before the advent of good, cheap portables.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WRTH
COMPREHENSIVE COUNTRY-BY-COUNTRY LISTINGS OF LONG, MEDIUM AND SHORTWAVE BROADCASTERS BY FREQUENCY, TIME AND LANGUAGE
SPECIAL FEATURES INCLUDING WORLD SATELLITE BROADCASTS RECEIVER TEST REPORTS WORLDWIDE BROADCASTS IN ENGLISH BROADCASTER ADDRESSES AND PERSONNEL MAPS OF PRINCIPAL TRANSMITTER SITES

There also seem to be efforts being made to address some of the shortcomings of the book, such as a comprehensive address section (finally!) which also contains useful information on how stations respond to correspondence, based on the experience of other hobbyists.

Much of this information has been difficult if not impossible for hobbyists to obtain outside of a small elite group, and provides a useful addition to the hobby. It does tend to weaken the focus of the book, which has previously seemed aimed at mainly beginners.

For utility band (non-broadcast transmissions) listeners, there are a few books that perform much the same function as the above two books, although due to the nature of such point-to-point communication, not with the same sense of definitiveness.

If you're into the utilities, look out for **Confidential Frequency List** — published by Gilfer Shortwave; **The Shortwave Directory** — published by Grove Enterprises; or **Klingenfuss Guide to Utility Stations** — published by Klingenfuss Publications.

****Are Scanners Legal...?***

Scanners are completely legal and no, there is no intention to ban them and/or modify them that we are aware of... It is different in America where new regulations are being introduced and hopefully we will have a story on this in the next issue.

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8. Entries must be received by Inside Football via the coupon provided. The winner shall be the first correct entry drawn out of the barrel on 15.12.94 at ACP Syme Magazines, 603-611 Little Lonsdale Street, Melbourne 3000. The winner will notified by mail and published in the Mar-Apr 1995 edition of CB Action.
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10. The promoter of this competition is Syme Magazines, 603-611 Little Lonsdale Street, Melbourne 3000.
11. Closing date 14.12.94. Date and place of draw 15.12.94, Syme Magazines, 603-611 Little Lonsdale Street, Melbourne

GCBUN1

By Jack Haden

DXinternational

We have all heard at one time or another Slim Dusty singing the song about a 'pub with no beer'. Well how about an 11 metre band with no DX? Conditions have been in the utter doldrums during past weeks. It's been so bad that one Sunday afternoon I heard only three Australian stations here in Nauru in nearly two hours use of a prominent high-channel call frequency. Interstate DX is also in pretty poor shape, however there has been some trans-Pacific and Asian DX about from time to time to rescue us from boredom. Although signals may be way down and fade a bit of a nuisance, they *are* workable and some DX is better than no DX.

Things are no better on the 10 metre amateur band either. It is usually as dead as the proverbial door nail from one end to the other except for the odd WIA beacon heard now and again. However, things are slowly on the improve as we lead into warmer weather, and already things are improving on 20 metres, while 15 metres is also showing some small signs of life. So it shouldn't be all that long before better propagation conditions start filtering through to 11 metres.

DXCC NEWS

Walvis Bay (322 prefix) was deleted from the amateur radio DXCC countries tally back in March. However, it is still part and parcel of the 11 metre band standings offered by most prominent DX groups still in existence. So officially, in a sense, it no longer counts after the deletion date of March 1, 1994.

Of course all valid contacts/confirmations made prior to that will be recognised.

Walvis Bay was easy pickings for most on 11 metres, however the majority of contacts were often with mobiles, mostly South African truckies.

Base and DXpedition contacts were, in fact, few and far between.

The **Penguin Islands** (324 prefix) has also bitten the proverbial DXCC dust, so to speak. It too was bounced off the amateur radio DXCC listings on March 1, 1994. Personally I do not know more than a handful of DXers on 11 metres who have worked, let alone confirmed, this one. I found it a hard one to crack in the QSL stakes, with the only land-based station I worked never QSLing despite three cards sent to the Namibian address with all the trimmings. Not too many of us will miss the demise of the Penguin Islands from the DXCC tallies, I'm sure.

Both Walvis Bay (322) and the Penguin Islands (324) now count as Namibia (74 prefix).

SCARBOROUGH REEF... A NEW ONE?

Scarborough Reef is all the buzz at the moment on the amateur bands as a possible 'new one' to be added to the DXCC list. Scarborough Reef is known to the Chinese as **Huang Yan Dao** (Yellow Rock Island) and lies in the China Sea approximately 225 nautical miles from the Philippines. Despite being close to the Philippines the reef is claimed by the Peoples Republic of China.

However, if I were you I wouldn't start planning a DXpedition, as Scarborough Reef only exists proper at high tide. At other times, all that remains is approximately seven or so rock heads just visible above the ocean's surface. Even at high tide, the estimated height of the rocks is said to be only around five to six feet above sea level!

Staying, let alone *operating* a DXpedition during high tide would be all but impossible, but all is not lost. There are a couple of ship wrecks on the reef, and at least one is well above sea level at high tide, according to a group of radio amateurs who surveyed the reef from the air.

On June 25 and 26 a group of radio amateurs from China, Japan, Germany, America, Denmark and the Philippines visited the reef and hit the air (on the amateur bands only) signing as **BS7H**. During the quick 12-hour operation (presumably between tides?), around 2,000 contacts were entered into the logs, mostly with America, Japan and the Pacific region.

PRATAS ISLAND... STILL UNDECIDED

Pratas Island is another yes/no/maybe, or a dollar each way, DXCC-wise too. Unlike Scarborough Reef, which virtually turns submarine even at high tide, Pratas is a proper island and belongs to mainland China. There has been some amateur radio activity from the island and it already boasts an IOTA number (AS-110), but until the subject of who *really* in fact owns Pratas Island (long under dispute) it will hang in the wings of DX obscurity. Pratas Island lies 150 nautical miles off mainland China and 250 nautical miles from Taiwan, and is not overly difficult to access.

THE CYPRUS DILEMMA

The Turkish Republic of Northern Cyprus pops up now and again, both on amateur radio and 11 metres. One or two individuals have been stirring up trouble on the amateur bands by going to air with the so-called "new republic's" prefix (**1B**). A petition was also sent to DXAC in the USA asking that the Turkish republic of Northern Cyprus be added to the DXCC listings. However, this was rather short-lived as the petition, to the relief of many, was withdrawn from DXAC submission.

Current rumors indicate a Turkish Cypriot re-submitting a further application with new information, but somehow I think the whole scenario is wearing a little thin with the people at DXAC. A station appeared on 11 metres in late July signing as **334-TRNC-01** but disappeared quickly after being challenged by another station on Cyprus. All in all, the 'country' doesn't officially exist on amateur radio — or on 11 metres for that matter. I wouldn't get too excited or distracted by anything concerning this one at present. Just wait and see — but don't hold your breath!

NORTH KOREA... PREFIX CONFUSION

North Korea is still in the transit lounge, so to speak, when it comes to being assigned a prefix of common identity on 11 metres. The **Tweed Radio DX Group** has allocated North Korea the 333 prefix, conflicting with that of Alfa Tango, which allocated Eritrea the 333 prefix. Alfa Tango, still dragging

....☞

DXinternational

By Jack Haden

behind in DXCC additions and subtractions, has yet to issue North Korea with a prefix, so until it does so most other DX clubs have decided to go their own way, so to speak, and rightfully so to my way of thinking.

ERITREA... PREFIX CONFUSION II

Eritrea may be recognised as a sovereign country on the world stage, but as far as 11 metres is concerned this tiny African country is still having identity problems. Alfa Tango, which usually leads the way in the allocation of international country prefixes, has dubbed (perhaps 'bestowed' is a better description) Eritrea as the 333 division. However, some beg to differ.

Take the Australian-founded Tweed Radio, which allocated 334 prefix to Eritrea, whilst Lima Delta (out of Italy) has Eritrea as 331 division.

So you can either work (if you are lucky enough, that is) Eritrea as 331, 333 or 334 division, depending on with which club the operator's loyalties lie. One would think by now that common sense would prevail for sanity's sake, and that everyone would stick together and appoint the same prefix numerals to the same countries... sure would make things a lot easier all round!

Then again, Alfa Tango, the usual callsign 'authority' most clubs follow, has not always been quick off the mark in leading the way in speedily allocating or deleting prefixes when news broke out on the amateur bands.

Little wonder why other clubs get in first and possibly allocated Eritrea a prefix number whilst the team at AT sat around and twiddled their thumbs?

MORE PREFIX RIDDLES

Just to confuse everyone even more is the dilemma surrounding the various prefixes issued to the newly-independent states of the former Yugoslavia. **Slovenia**, **Croatia** and **Bosnia-Herzegovina** suffer from an identity crisis on 11 metres within regard to prefixes. Depending on which club the operator belongs to, you could work the one country under a variety of prefixes.

Croatia first became the 327 division according to a 'hot-off-the-press' bulletin which also quoted Slovenia as the 328 division.

Well and good, you may say, this so-called hot-off-the-press information wasn't worth the paper it was printed on, as someone at AT headquarters decided to swap them around at the last minute, thus Croatia became 328 and Slovenia 327 prefixes respectively.

It doesn't end there, I'm afraid. The **Czech Republic** and **Republic of Slovakia** also enjoy a variety of prefixes on 11 metres, evidently depending on which club the operator belongs to or, if a non-club type, who he picks his chosen prefix identity numbers from. In essence, all this lolly gobble keeps us on our toes and guessing who is what and where is whom!

201 PREFIX TO BE DIVIDED UP?

The **Austral** and **Marquesas Islands** in French Polynesia (201 prefix) are once again in the radio news spotlight. Only a couple of years back there were moves being made to have these two island groups declared new DXCC countries, but attempts failed as the DXAC rejected the petitions.

However, in August the matter was again considered, and this time it was determined that the groups qualify under Point 2 (separation by water), and French Polynesia is a Point 1 country.

The mind boggles! I am quite happy with the way they are, a part of French Polynesia as a whole. Anyone who has ever been to the Austral or Marquesas Islands will tell you that they are very isolated outposts and not a bustling tourist Mecca like Tahiti.

In 1979 and again in 1983 I visited the Marquesas Islands and they are about as far from civilisation you are likely to get next to Pitcairn Island. They are well known for their biting sandflies and mosquitos too.

BELLANY WHO?

The **Bellany Islands**, way down the isolated ocean towards Antarctica, have also received some attention at DXAC in recent weeks. The islands are 225 nautical miles away from New Zealand and are found at latitude 66 degrees 55 minutes south and longitude 163 degrees 120 minutes east. No one lives on these islands and are more likely designated as wildlife reserves and thus best left to the birds! An American radio amateur petitioned DXAC for the Bellany Islands to be considered a possible new DXCC country.

PRINCIPALITY OF SEBORGA... A NEW ONE?

The **Principality of Seborga** has once again danced into the limelight, as moves are under way to again try to push DXAC into accepting this as a potential new one DXCC-wise. The Principality is only 20 or so kilometres north of Monaco and is 517 metres above sea level.

You know, I thought Nauru, which is just 18 kilometres square, was small, but Seborga is reputed to be only *five* square kilometres! Imagine the QRM on 11 metres if everyone there came on wound up full blast? (The population is around the 300 mark.) Personally, I cannot see this one making it through to be declared a new one.

A QUESTION OF OWNERSHIP...

One of the most 'claimed' DXCC countries around would have to be the Spratly Islands (241 prefix) group.

Not many DXers are aware of the fact that all of *six* countries lay claim to these islands, and from time to time military activities/occupations have been known to take place — a way of showing the flag I guess.

China, Taiwan, Vietnam, the Philippines, Brunei and Malaysia all say that the islands, or a part of them, are their sovereign territory.

Just over a decade ago a number of amateur radio DXpeditioners were killed by soldiers whilst attempting to land on one of the islands to put it on air.

As we all know, Argentina lays claim to a number of Atlantic Ocean islands which Britain has occupied for many years, with the well-known **Falkland Islands** (198 prefix) not so long back bringing the ownership issue into question. Not only does Argentina lay claim to the Falklands but also to **South**

Georgia Islands (289 prefix), **South Orkney Islands** (221 prefix) and **South Sandwich Islands** (222 prefix).

However, the **South Shetland Islands** (200 prefix) are claimed by Britain, Argentina, Chile *and* Russia!

Now you may be able to understand better how DXCC countries come and go radio-wise — an occupation here, independence there, and a war in between, all contribute to what comes and what goes on the DXCC ladder from time to time.

Here in the Pacific we have the distinct possibility of **Bougainville Island** just of the northern tip of the Solomon Islands gaining its independance from Papua New Guinea, and thus another new DXCC country emerges. The **Republic of the Marshall Islands** recently laid claim that **Wake Island** (278 prefix) traditionally belonged to them, and is unlawfully occupied by the USA. It has requested that Washington return Wake Island to the Republic of the Marshall Islands on a number of occasions.

LIVE IN HOPE...

I received a QSL card the other week from Vernon, who signs as the 8-KP-563 on **St Kitts** (283 prefix). I both worked Vernon and mailed to him that same day my QSL card with all the trimmings on February 16, 1991. So it either took Vernon three and a half years to answer it or the QSL took three and a half years to filter through the world's mail system.

Look at it any way you will. It just goes to show that you should *never* give up waiting for that exotic QSL to turn up. As the old saying goes... better late than never or, if you like, live in hope and you will never die in despair!

WAITING FOR A QSL FROM RUSSIA?

Russian authorities recently arrested and charged a number of mail sorters at the Moscow mail center. The group was charged with theft, and the arrests followed months of intensive investigations and surveillance. It appears that mail originating from affluent Western countries was the main target for the thieves who were ripping the articles open looking for foreign currency.

A number of Russian radio amateurs complained about mail not getting through, and now we know the reason why. I wonder how much 11 metre mail was also tampered with by this group?

DX CLUB NEWS

I was most pleased to receive a letter from the executive president (snappy title!) of the **Tweed Radio DX Group**.

Bryan, the 43-TR-01 in Murwillumbah, NSW, responds to the mention made of the group in the last issue of CBA. Bryan informs me that the club is 100 per cent Australian-born and bred, with the group being formed on New Year's Day, 1990.

Primarily, the club serves the 40-channel community, both 27MHz and UHF, but there are some members who 'freelance' about 11 metres a wee bit using their club calls. As mentioned in the last issue of CBA, the club has more than 3,000 members scattered all over the world, and offers a wide range of activities, both social and radio wise, to maintain member interest.

Bryan also informs me that the club is holding its second Tweed Radio Convention over the period October 15 and 16, with members from the USA, Europe and the Solomon Islands scheduled to attend the largely Australian gathering.

Thanks for the invitation, Bryan, but sadly I will be abroad at that particular time so I cannot make it. Membership applications and any enquires regarding the Tweed Radio DX Group should be sent to club headquarters.

Membership fees are currently $10 per single and $12 per double a year. Simply send a stamped, self-addressed envelope to: Tweed Radio DX Group, PO Box 773, Murwillumbah NSW 2484.

SIERRA ALFA DX GROUP

It was great to receive some informative correspondence from Bob, the 43-SA-191 in New South Wales, outlining the functions of the Australian division of the Italian-based Sierra Alfa International DX Group. Although Bob supplied no approximate membership figure

I for a fact know that Sierra Alfa has quite a following as their callsigns are heard frequently on 11 metres from all over the globe.

Sierra Alfa has also been behind quite a number of DXpeditions to some rare and semi-rare DX spots over the past few years benefiting all DXers regardless of club loyalties.

The 50 countries worked and confirmed entry required has been eased, so entry is now open to any aspiring DXer. There is no social club at all, thus this group is DX-orientated only. Full membership is currently $30 per annum, and that includes the annual callbook listing current members' names and addresses world-wide.

The yearly contest schedule is also included, along with anticipated DXpedition plans. A full list of award details and requirements is also in the membership package to keep you occupied and motivated in the DX hobby.

Quite a lot of club material is also available to members and includes the usual fare of generic QSL cards at sensible prices, rubber stamps, stickers and key rings. Rumor has it the club may go into tee shirts in the near future... now *that* should be interesting!

If you are interested in more details about the group and its activities, why not drop it a line, enclosing a stamped self-addressed envelope to either of the following addresses: Australian Director, PO Box 466, Brunswick, Victoria 3056, or to the NSW Director 43-SA-191, at PO Box 88, Boorowa NSW, 2586.

So that's another DXI out of the way, I hope there has been something of interest for everyone this time around in lieu of our usual DX departments, which are virtually void of news except a little bit from the Asia/Pacific region.

Thanks to those who wrote in with DX club news and other comments. Let's keep our fingers crossed that the bands open up now as it's Spring, and that they give us some good summer propagation paths.

Reader comments and information are welcome. A self-addressed envelope must be furnished for a personal reply. Write direct to PO Box 299, Ryde NSW, 2112.

SHORTWAVE BROADCASTING STATIONS INTERNET ADDRESSES

Compiled by Thorsten Koch

For those of you who have already discovered E-mail (electronic mail), the following is a compilation of SW broadcasting station E-mail addresses which will enable almost immediate telephone access to the stations listed. For those, however, who are wondering what the hell E-mail is all about, the next issue of CBA will contain an article(s) telling you what it is, how to use it, how much it will cost - and everything else you will need to know to join this exciting revolution in high tech communications.

Internet allows you to simply dial into a local service via a 'phone and modem (just like ringing a BBS) which will then instantly connect you to a computer at the Internet address you have entered from where you can download text, software, information, etc back to your local Internet service connection and from there onto your own computer...all for the cost of a relatively small joining fee and (providing that you're not in an STD area) the price of a normal local 'phone call.

The following compilation was correct as at 19 July.

The intention of this list is to give a directory to the Internet's users who are in the (especially: shortwave) broadcasting business. There are many FAQ's in Usenet's rec.radio.shortwave group such as: "How can I email station ...?". I hope that this list will reduce these questions and have compiled a list of many station's addresses.
Also included are some club addresses and specialist's addresses.
I have also included some gopher, ftp and Usenet news info and infos on HTML pages in Internet's new and booming technology, World Wide Web (WWW).
If someone knows addresses not included in the following, new or altered,, please send them to me!
Thorsten Koch at (Internet address) thorsten.koch@arbi.informatik.uni-oldenburg.de

This list is also available through;
* World Wide Web: http://www.informatik.uni-oldenburg.de:/~thkoch/
* regular updates through Usenet's rec.radio.info & rec.radio.shortwave
* on ftp server ftp.funet.fi: /pub/dx/text/general.lists/Guide.ADDX
* published irregularly in the ADDX bulletin "Kurier"

INTERNET ADDRESSES OF BROADCASTERS

AUSTRIA
"Shortwave Panorama" at Radio Austria International
Mail: wolf_harranth@p44.f22.n310.z2.fidonet.org (Wolf Harranth OE1WHC)

BELGIUM
BRTN (Belgian Radio & Television - Dutch Language Network)
Radio Vlaanderen Internationaal
Mail: rvi@p5.f878.n292.z2.fidonet.org

COSTARICA
Radio For Peace International (RFPI)
Mail: rfpicr@nicarao.apc.org
Reception reports via email are welcomed but can only be answered the same way!

CUBA
Radio Havanna
Mail: radiohc@tinored.cu
There also is a daily news service of the region available via email.

DENMARK
Radio Denmark (Shortwave Service)
Mail: rdk.ek@login.dknet.dk
This is not an on-line service, but ek (= Erik Koie) logs in for mail a couple of times a week. Although Radio Denmark is anxious to receive reports, they still do not QSL.

EQUADOR
Radio HCJB - The Voice of the Andes
Mail: Czech Department: czech@mhs.hcjb.com.ec
English Department: english@mhs.hcjb.com.ec
French Department: french@mhs.hcjb.com.ec
German Department: german@mhs.hcjb.com.ec
Japanese Department: japanese_department@mhs.hcjb.com.ec
Nordic Department: nordic@mhs.hcjb.com.ec
Portuguese Department: portug@mhs.hcjb.com.ec
Russian Department: russian@mhs.hcjb.com.ec
Spanish Department: radlocal.mhs.hcjb.com.ec
FTP: nw311.hcjb.com.ec (login as 'anonymous')

GERMANY
Deutsche Welle
Mail: CompuServe 100144,2133 (Internet 100144.2133@compuserve.com)
"DX-Report" at Radioropa Info
Mail: dx-report@ng-box.wwb.sub.de

HONDURAS
Radio Copan International HRJA
Mail: CompuServe 71163,1735 (Internet 71163.1735@compuserve.com)
Please include your regular posting adress, so the station can send you program schedules, QSLs, etc.

ITALY
NEXUS-International Broadcasting Association (Italian Radio Relay Service IRRS)
Mail: CompuServe 100020,1013 (Internet 100020.1013@compuserve.com)

JAPAN
Radio Japan
Gopher: gopher.ntt.jp
WWW: http://www.ntt.jp:80/japan/NHK

NETHERLANDS
Radio Netherlands
Mail: letters@rn-hilversum.nl

NEW ZEALAND
Radio New Zealand International, New Zealand

Mail: adrian@actrix.gen.nz
Adrian Sainsbury (Frequency Manager at RNZI):
(A. Sainsbury is not QSL-Manager at RNZI!)

SWEDEN
Radio Sweden
Mail: CompuServe 70247,3516 (Internet 70247.3516@compuserve.com) (George Wood, host of "Media Scan / Sweden Calling DXer")

UNITED KINGDOM
British Broadcasting Corporation
Mail: iac@bbc-ibar.demon.co.uk (Int'l Audience Correspondence)
The BBC World Service does not have an on-line news service on e-mail. This is just an address for correspondence. They cannot send full transmission details by e-mail, but information will be sent by post on request. Although the engineers are interested to receive reception reports, the BBC does not send QSLs.
WWW: http://www.bbcnc.org.uk

UNITED STATES OF AMERICA
Monitor Radio International (WCSN, WSHB, KHBI)
Mail: Letters and reception reports: letterbox@csms.com
Technical questions: letterbox-tech@csms.com
Also, you can reach personnel of the individual stations:
WCSN: Bob "Stes" Stessel, Station Manager - stes@wcsn.csms.com
KHBI: Doming Villar, Station Manager - doming@khbi.csms.com
WSHB: Ed Evans, Senior Station Manager - cee@wshb.csms.com
Judy Cooke, QSL coordinator - judy@wshb.csms.com

Radio Free Europe / Radio Liberty
Mail: walcuttd@rferl.org (David Walcutt) frequency and schedule information

Radio Miami International WRMI
Mail: CompuServe 71163,1735 (Internet 71163.1735@compuserve.com)
Please include your regular posting adress, so the station can send you program schedules, QSLs, etc. The station also welcomes DX news via email for use in its DX program "Viva Miami".

"Spectrum" DX programme at WWCR Nashville, USA
Mail: There are three email addresses:
a) spectrum@overleaf.com
b) askspectrum@attmail.com
c) spectrumshow@genie.geis.com

Voice of America, USA
Mail: For program schedule requests and general messages from outside the United States: letters@voa.gov
For reception reports (requesting a QSL card) from outside the United States: qsl@voa.gov
For program schedule requests and general messages from inside the United States: letters-usa@voa.gov
For reception reports from inside the United States: qsl-usa.gov Gopher: gopher.voa.gov
ftp: ftp.voa.gov

CLUBS & MORE

BELGIUM
DX Antwerp
Mail: Guido Schotmans: guido.schotmans@f878.n292.z2.k12.be

FINLAND
Finnish DX Association
Mail: Risto Kotalampi: rko@cs.tut.fi
(President of the Finnish DX Association)
WWW:
http://www.cs.tut.fi/~rko/dx/index.html
FTP-archive for DXers
FTP: ftp.funet.fi
directory: /pub/dx/
Texts, schedules, programs for DXers

GERMANY
Arbeitsgemeinschaft DX (AGDX) e.V.
PC & Mailboxarbeitskreis
Mail: mario@zaphod.rhein.de
Fidonet: 2:2453/30.4

Assoziation Deutschsprachiger DXer (ADDX) e.V.
Mail: Andreas Volk:
avolk@blabel.ppp.informatik.uni-muenchen.de
(KURIER magazine, English/French languages broadcast list)
Thorsten Koch: thorsten.koch@informatik.uni-oldenburg.de
(KURIER magazine, editor of this list)

Kropf, Mathias:
Mail: CompuServe 100144,232 (Internet 100144.232@compuserve.com)
(expert on clandestine stations, DSWCI Shortwave News, WDXC Contact)

NETHERLANDS
Benelux DX-Club (BDXC), The Netherlands
Mail: Jan Nieuwenhuis: nieuw@nioz.nl
jan.nieuwenhuis@f202.n500.z2.fidonet.org
(Editor "DX-Hotline" & "Publications", BDXC-bulletin)

UNITED KINGDOM
AM/FM
WWW:
http://www.tecc.co.uk/public/tqm/amfm/
AM/FM is a monthly newletter covering events throughout the UK radio industry, including BBC network and local radio, Independent National Radio, ILR, satellite radio and the pirates. This WWW database contains back issues of AM/FM and details of how to subscribe to both AM/FM and its associated UK-Radio mailing list.

Medium Wave Circle, United Kingdom
Mail: Steve Whitt whitt_s@bt-web.bt.co.uk

World DX Club
Mail: mark@dxradio.demon.co.uk (Mark Hattam)

UNITED STATES OF AMERICA

Fine Tuning
Mail: lyamron@vnet.ibm.com
CompuServe 72700,31 (Internet 72700.31@compuserve.com)

Michigan Area Radio Enthusiasts, Inc., USA
Mail: Ken Vito Zichi:
ab415@leo.nmc.edu

Shortwave & Radio Hypertext Catalog
by Pete Costello
WWW: http://itre.uncecs.edu/radio/

INTERESTING USENET NEWS GROUPS

rec.radio.shortwave
rec.radio.info
rec.radio.broadcasting
rec.radio.noncomm
rec.radio.pirate
rec.radio.swap
rec.radio.cb
rec.radio.scanner
rec.radio.amateur.equipment
rec.radio.amateur.misc
rec.radio.amateur.policy
maus.kurzwelle (in German language)
Fidonet: fido.ger.kurzwelle (in German language)
aus.radio
Fidonet: fido.ger.darc (in German language)
100aus.radio
Fidonet: fido.ger.darc (in German language)
alt.radio.networks.npr (National Public Radio)
alt.radio.pirate
alt.radio.scanner

CB UHF REPEATER LIST

NEW SOUTH WALES

Callsign	Town/Locality
	CHANNEL 1
BEL01	Belbora
BHI01	Broken Hill
BIN01	Bingara
BOB01	Harden
BRE01	Brewarrina
BRH01	near Broken Hill
BUN1	near Merriwa
CHT01	Charlestown
COR01	Corowa
DNQ01	Deniliquin
GRE01	Grenfell
GUY01	Guyra
JIN01	near Jindabyne
KGL01	Kyogle
MBI01	Moonbi
MRT01	Wilcannia
MTE01	Mt Eagle
NEE01	Dubbo
NIM01	Nimitable
NYN01	Nyngan
RYL01	Rylestone
SYD01	Sydney
ULA01	Ulladulla
WAG01	Wagga
WGT01	Walget
	CHANNEL 2
BER02	near Gloucester
BRH02	Broken Hill
CAN02	Cangai - West of Grafton
EDN02	Bega / Eden
GDH02	Gunnedah
INV02	Inverell
KHN02	Khancoban
KOS02	near Thredbo
KUR02	Sydney - Blacktown
LGW02	Mt Lambie
LIS02	near Byron Bay
MAC02	Port Macquarie
NBR02	Wee Waa / Narrabri
NOW02	Nowra
PAR02	Parkes
WAL02	Walcha
WAN02	Wanaaring
WBD02	Walbundrie
VRB02	Urbenville
	CHANNEL 3
CAN03	near Orange
CAS03	Casino
COM03	Mt Kophi
DUN03	Dungog
GIL03	Braidwood
GTH03	Griffith
MDI03	Murrurundi
MNA03	Manilla
MOR03	Moree
MTI03	Tubramurra Shire
PLO03	East of Armidale
RWT03	Hay
SYD03	Sydney
TEN03	Tenterfield
	CHANNEL 4
ALB04	Albury
ARM04	Armidale
CBN04	Coonabarabran
DRK04	Girard
GLB04	Goulburn
HAY04	Hay
MON04	Kandos - near Mudgee
MUS04	Muswellbrook
OGU04	Ogunbi - near Tamworth
RIV04	Penrith Area
SOU04	near Cooma
THA04	near Broken Hill
TUL04	Tullibigeal
TWH04	Banora Point
WAN04	Mt Wandera
WAR04	Warialda
YNG04	Young
	CHANNEL 5
	EMERGENCY REPEATERS
BIN05	**Katoomba**
BKE05	**Mt Gunderbooka**
CAP05	**near Tenterfield**
CHN05	**Charlestown**
COR05	**Corowa**
FOR05	**Mount Tallabung**
GLB05	**Goulburn**
JIN05	**Jindabyne**
MTS05	**Narromine**
MTU05	**S-West Slopes, East River**
OXY05	**Bourke**
ROB05	**Illawarra**
SYD05	**Sydney**
TAM05	**Tamworth**
TBO05	**Mt Talbingo**
	CHANNEL 6
BAR06	near Narrabri
BON06	Bonshaw - Q/NSW border
COF06	Coffs Harbour
COL06	Oakey
GGG06	Glengary
LGW06	Lithgow
MAL06	Mallanganee
MTG06	Bowral
MUM06	Mumbulla Mountain
NAR06	Narromine
NEW06	Sugarloaf Range
ROB06	Mt Robert
TUM06	SnowyMountains
WAL06	Walcha
WEN06	Tolarno
	CHANNEL 7
BAL07	Buckombil Hill
BOM07	Bombala
BO007	Booral - near Bulahdelah
COW07	Cowra
GLH07	Glen Lyon
GLI07	Glen Innes
MIL07	Milton
NUN07	Nundle - near Tamworth
SYD07	Sydney
WAL07	East of Walcha
	CHANNEL 8
BAT08	Bathurst
COB08	Cobar
CON08	Condobolin
EUC08	near Eucumbene
GLE08	Glen Innes
GRE08	Gresford - near Dungog
GRF08	near Grafton
KEM08	Kempsey
MER08	near Merimbulah
MUR08	Tomewin
NAR08	Narrandera
ROB08	Illawarra
TBC08	Tooleybuc
URA08	Uralla - near Armidale
WAL08	Walcha
WOY08	Kariong

NORTHERN TERRITORY

Callsign	Town/Locality
	CHANNEL 1
ALS01	85 KM SE of Alice Springs
BPK01	90 KM N of Alice Springs
DRW01	Darwin
KVB01	Double Hill
MLG01	Milingimbi
	CHANNEL 2
ALC02	115 KM NE of Alice Springs
DDB02	Garibaldi Station
SWN02	150 KM NNE of Alice Springs
	CHANNEL 3
ELK03	325 KM NE of Alice Springs
ERL03	185 KM SSW of Alice Springs
MMI03	Mistake Creek Station
	CHANNEL 4
DPW04	70 KM S of Alice Springs
MST04	110 KM S of Alice Springs
	CHANNEL 5
None assigned	
	CHANNEL 6
HEN06	120 KM SW of Alice Springs
	CHANNEL 7
AMB07	85 KM SE of Alice Springs
ASP07	Alice Springs
	CHANNEL 8
None assigned	

The following channels are the Input channels for a repeater:

Ch	Frequency (MHZ)	
1	467.425	
2	467.450	
3	467.475	
4	467.500	
5	467.525	** for emergency use only
6	476.550	
7	476.575	
8	476.600	

The output channels are listed below:

In	Out	Frequency (MHz)	
1	31	477.175	
2	32	477.200	
3	33	477.225	
4	34	477.250	
5	35	477.275	** for emergency use only
6	36	477.300	
7	37	477.325	
8	38	477.350	

QUEENSLAND

Callsign	Town/Locality
	CHANNEL 1
ANN01	St Annes Range
BAR01	near Barcaldine
BAT01	Bathurst Heads
BNE01	Mt Cotton
DEL01	Collinsville
HAN01	Hannaford
HUG01	Hughenden
ING01	Inglewood
INN01	Innisfail
MDT01	Middlemount
MOR01	Mt Hope
OWN01	Mt Oweenee
RKY01	Mt Archer
ROM01	Mt Bassett
SPC01	Windorah
TSV01	Townsville
TTH01	Twin Hills
WBB01	Mt Perry
WCT01	Charters Towers
	CHANNEL 2
GLD02	Gladstone
GLN02	Glenden
ING02	Mt Cordelia
JCK02	Julia Creek
LAU02	Laura
MAB02	Broadsound Range
MIN02	Glenlyon Dam
POR02	Drummond Range
SPC02	Bowen
TAM02	Tambo
TAR02	Taroom
TRN02	Quilpie
TWB02	Mt Kynoch
WAG02	Aranyi South
WAV02	Wavell Heights
WBR02	Mt Kanigan
WON02	Cogango Range
	CHANNEL 3
ABC03	Gold Coast
CHI03	Chinchilla
CTS03	Charters Towers
INK03	Mt Inkerman
KIL03	Kilcoy
LAI03	Mt Beau Brummell
MBO03	Tinana
MTO03	Monto
MTW03	Mt William
PCC03	Edward River
SPR03	Springsure
VHO3	Mt Isa
	CHANNEL 4
BBG04	Sloping Hummock
DIP04	Double Island Point
EID04	Eidsvold
GDI04	Goondiwindi
HOP04	Rockhampton
IPS04	Ipswich
JER04	Jericho
MBH04	Moranbah
MOW04	Darling Downs
TSV04	Townsville
VHN4	Expedition Range
VHW4	Cannonvale
	CHANNEL 5
	EMERGENCY REPEATERS
ABC05	**Springbrook**
BNE05	**Mt Glorious**
CEM05	**Clermont**
FSB05	**Mt Goonaneman**
GEM05	**MtWolvi**

ING05	**Mt Cordelia**
MIL05	**Commodore Peak**
QBM05	**Darling Downs**
VHN05	**Charters Towers**
VHP05	**Biloela**
	CHANNEL 6
BLK06	Blackdown Tablelands
BRA06	Sea View Range
CBT06	Mundubbera
CHT06	Mt Janet
CLE06	Police Mtn
CNE06	Bergen
DIM06	Mt North Iron
GLD06	Mt Larcom
MIL06	Palardo Hill
MKY06	Gympie / Mackay
PRR06	Clermont
RIC06	Yan Yean
TAM06	Tambo
THG06	Thargomindah
VHN06	Wilkes Knob
	CHANNEL 7
BIL07	Banana Range
BNE07	Toohey Mtn
CTR07	Towers Hill
DMD07	Clermont
ESK07	Esk
GEM07	Gympie
IND07	Fraser Island
ING07	Mt Mercer
MUR07	Mt England
VHO7	Mt Hutton
WBB07	Mt Watalgan
WRA07	Warwick
YKA07	Mt Slowcombe
	CHANNEL 8
AMI08	Amiens
AMP08	Monto
BAL08	Noondoo
BLL08	Blackall
CHN08	Mt Peanga
CHT08	Charters Towers
EMD08	Emerald
HBY08	Ghost Hill
MBR08	Mt Brisbane
NEB08	Nebo
ONV08	Ocean View
TLD08	Atherton
VHN08	Barkly Down

SOUTH AUSTRALIA

Callsign	Town/Locality
	CHANNEL 1
CDA01	Ceduna
MJN01	Oodnadatta
MTR01	Leigh Creek
PRC01	Carrieton (Nth of Orroroo)
PAR01	Adelaide (North)
TYN01	Oodnadatta
VLA3	Crystal Brook
	CHANNEL 2
BOR02	Bordertown
BRP02	Orroroo
CLV02	Cleve
MYP02	Myponga
VLA4	Kingoonya
	CHANNEL 3
ADL03	Adelaide (Central)
ALN03	Yunta
BLN03	Blinman, Flinders Ranges
CTR03	Moonta
KBY03	Port Elliot
UNO03	Port Augusta
	CHANNEL 4
BLF04	Port Pirie
BAR04	Nuriootpa
KOK04	Lake Gairdner West
NAR04	Lucindale
PKI04	Kangaroo Island
	Leigh Creek (North East of)
	CHANNEL 5
	EMERGENCY REPEATERS
ADL05	**Adelaide suburb**
BEE05	**Crystal Brook**
EUD05	**Eudunda**
MNT05	**west of Woomera**
MTG05	**Penola/Mt Gambier**
	CHANNEL 6
LST06	Elliston (Eyre Peninsula)
NON06	120 Km West of PtAugusta
REN06	Renmark
SNO06	Snowtown (nearPt Pirie)
TIN06	Coonalpyn
WKI06	Kangaroo Island
WLG06	Tarcoola
WLP06	Willpena
	CHANNEL 7
CLR07	Clare
MTG07	MtGambier
MUT07	south of Cockburn
UNO07	Kyancutta
VLA7	Streaky Bay
WIL07	Hawker
YKP07	Warooka
	CHANNEL 8
BRYY08	Burra
MBV08	Lobethal/Murray Bridge
MTA08	Quorn
PTL08	Tumby Bay/Port Lincoln
	Oodnadatta (200 KM SW)
	Yalata (187 Km N/W of Ceduna)

TASMANIA

Callsign	Town/Locality
	CHANNEL 1
DEV01	Devonport
FIS01	Flinders Island
SET01	Grasstree Hill
	CHANNEL 2
CHN02	Herring Back
LCN02	Launceston
TWC02	Mt Read
	CHANNEL 3
NEC03	Ben Lomond
	CHANNEL 4
MID04	Millers Bluff
	CHANNEL 5
	EMERGENCY REPEATERS
HBT05	**Hobart**
LTE05	**Fingerpost Hill**
	CHANNEL 6
REC06	Mt Paul
VJA6	Mt Lloyd
WCT06	St Valentines Peak
	CHANNEL 7
CHT07	Barren Tier
TNE07	Mt Victoria
	CHANNEL 8
BRN08	Burnie
TBL08	Table Mountain
TNE08	St Marys

VICTORIA

Callsign	Town/Locality
	CHANNEL 1
ALX01	Eildon
APS01	Apsley
MEL01	Melboume
OME01	near Omeo
ROU01	Penshurst
STA01	St Arnaud
WAL01	Walhalla
	CHANNEL 2
BAL02	Ballarat
KER02	Mt Kerang
MAN02	Mansfield
MOE02	Moe
PYA02	Pyalong
	CHANNEL 3
ABE03	South
DEL03	Bombala
HOR03	Horsham
FAL03	Falls Creek
JNR03	near Dartmoor
WBT03	Mt Wombat
WPH03	Weeaproinah
YLA03	Yelta
	CHANNEL 4
ANA04	Mt Anakie
ARA04	Ararat
BEN04	Bendigo
CRJ04	Traralgon
HAW04	Hawkesdale
MCA04	Marambingo Hill
	CHANNEL 5
	EMERGENCY REPEATERS
BAL05	**near Ballarat**
MAN05	**Mansfield**
MEL05	**Melboume**
RFY05	**Ruffy**
	CHANNEL 6
FOS06	Mt Fatigue
HLV06	Healesville
ECH06	Echuca
BRN06	Mt Concorde
MSS06	Mt Seldom Seen
SWH06	Swan Hill
WAN06	Wangandry
WIL06	Mt William
	CHANNEL 7
BOL07	Mt Bolton
BND07	near Bendigo
MEL07	Melbourne
MOR07	Mt Shadwell
MVL07	Mt Gordon
SHP07	Shepparton
TAL07	Mt Granya
	CHANNEL 8
ART08	Safety Beach
DUN08	Cavendish
HAR08	Mt Alexander
MCN08	Mt Cann
MYR08	Mt Porepunkah
TER08	Mt Terrible

WESTERN AUSTRALIA

Callsign	Town/Locality
	CHANNEL 1
COL01	Collie
DEN01	Denmark
GER01	Geraldton
KAM01	Kambalda
KAT01	Katanning
KLB01	Kellerberrin
LEN01	Leonora
MIA01	Mia Mia Station
MKT01	Poison Hills
PER01	Perth
WAR01	Warakuma
WIK01	Wickham
	CHANNEL 2
BIN02	Bindoon
BUN02	Near Bunbury
CAR02	Carnamah
KAL02	Mt Charlotte
LYN02	Lyndon Station
MRD02	Merredin
VLN5	Mt McLure
WLP02	Walpole
	CHANNEL 3
ALB03	Albany
CLA03	near Carlotta
NOR03	Nannup
PER03	Roleystone
VET03	near Bardoc
	CHANNEL 4
BYB04	Dinninup
ESP04	Esperance
GNG04	Lancelin
KUL04	Kulin
MTB04	Cranbrook
NEW04	Newman
	CHANNEL 5
	EMERGENCY REPEATERS
PER05	**Orange Grove**
MTR05	**Mt Barker**
VLN6	**Perth**
	CHANNEL 6
DAR06	Darkan
JUR06	Mt Lesueur
MGR06	near Margaret River
MNP06	Albany
MTS06	Mt Solus
VKM06	Wyalkatchem
	CHANNEL 7
BDG07	Bridgetown
C0007	Coolgardie
MGR07	Augusta
MTB07	Stirling Ranges
PIN07	Pinjarra East
VRK07	Mt Bakewell
	CHANNEL 8
MAN08	West Manjimup
MSA08	Mt Saddleback
NCM08	Kalamunda
QUN08	Quinorlup
RVT08	Ravensthorpe

A.C.T.

Callsign	Town/Locality
	CHANNEL 1
CBA01	Canberra (Portable)
	CHANNEL 2
CBA02	Isaacs Ridge
	CHANNEL 7
GIN07	Mt Ginini
	CHANNEL 8
CBA08	Isaacs Rid

REPEATER UPDATE

To maintain the UHF repeater list in an up-to-date manner requires the co-operation of repeater owners and local users. Please ensure that when an error is found, or an update is required, that you contact:

Trevor Colwell, ACBRO Inc.,
PO Box 170,
Walkerville 5081, South Australia

who will ensure that this information is included in the next repeater list.

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